

XVI INTERNATIONAL

CONGRESS OF ZOOLOGY

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# **XVI INTERNATIONAL CONGRESS OF ZOOLOGY**

**WASHINGTON**

**20-27 AUGUST 1963**

## **PROCEEDINGS**

*Edited by*  
*John A. Moore*

## **VOLUME 5**

**An Account of the Congress**



*Published by the*  
**XVI INTERNATIONAL CONGRESS OF ZOOLOGY**  
*Washington D. C.*

**1964**

# INTERNATIONAL CONGRESSES OF ZOOLOGY

	<u>Year</u>	<u>Place</u>	<u>President</u>
I	1889	Paris	A. Milne Edwards
II	1892	Moscow	P. Kapnist
III	1895	Leiden	F. A. Jentink
IV	1898	Cambridge	J. Lubbock
V	1901	Berlin	K. Möbius
VI	1904	Berne	T. Studer
VII	1907	Boston	A. Agassiz
VIII	1910	Graz	L. von Graff
IX	1913	Monaco	Prince Albert of Monaco
X	1927	Budapest	G. Horvath
XI	1930	Padua	P. Enriques
XII	1935	Lisbon	A. R. Jorge
XIII	1948	Paris	M. Caullery
XIV	1953	Copenhagen	P. Spärck
XV	1958	London	Sir Gavin de Beer
XVI	1963	Washington	A. S. Romer



XVI  
INTERNATIONAL CONGRESS OF ZOOLOGY

Held at  
Washington  
20-27 August 1963

By Invitation of  
National Academy of Sciences  
National Research Council

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Alfred S. Romer

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Ecological Society of America  
Society of General Physiologists  
Society of Protozoologists  
Wildlife Society

American Society of Ichthyologists and Herpetologists  
Society of Economic Paleontologists and Mineralogists  
Society for the Study of Development and Growth  
Society for the Study of Evolution  
Society of Systematic Zoology  
The Entomological Society of America  
The Paleontological Society

American Institute of Biological Sciences

## Publications of the Congress

Volumes 1 and 2 (containing abstracts of Contributed Papers) and 3 and 4 (devoted to the Specialized Symposia) of the Proceedings of the XVI International Congress of Zoology were printed in 1963 and distributed at the time of the Congress. Volumes 7, 8, and 9, which were devoted to the Science and Man Symposia, were published and distributed to members of the Congress in 1964.

Two other volumes were also distributed at the time of the Congress, namely, "A Guide Book to Washington" and the "Program." It should be mentioned that the "Program" contained a few abstracts of scientific papers (those which arrived too late to be printed in Volumes 1-4) and so must be regarded as part of the permanent record of the Congress.

Volume 6, which contains the papers of the Plenary Symposia, is now in production and should appear early in 1965. It will be mailed to the members of the Congress. Others desiring information about this volume should communicate with the Natural History Press, American Museum of Natural History, 79th Street and Central Park West, New York, New York 10024.

Volume 5, now in your hands, completes the Proceedings of the XVI International Congress of Zoology. Information about Volumes 1-5 and 7-9 may be obtained from the Printing and Publishing Office, National Academy of Sciences--National Research Council, 2101 Constitution Avenue, Washington, D. C. 20418.

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## A NOTE ON THE ILLUSTRATIONS

The frontispiece is a photograph of the artist's model from which the Congress Medal was made.

You will find numerous other photographs sprinkled throughout this volume in an attempt to leaven its contents. The captions identify the individuals from left to right. We are indebted to R. A. Boolootian for figures 6 and 7, to E. C. Herber for figures 14-16, to S. Oda for figure 17, and to O. Kraus for figure 18. I am responsible for the others.

J. A. M.

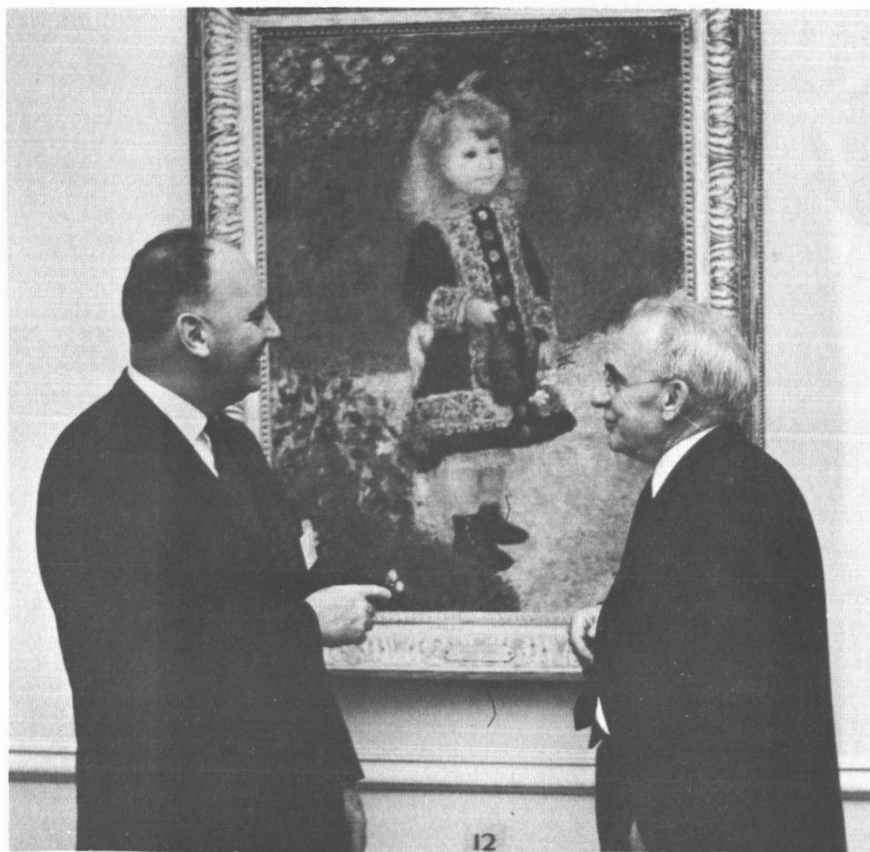


Figure 1. James A. Oliver, a member of the Organizing Committee and Alfred S. Romer, the President of the Congress.

## REPORT OF THE PRESIDENT

Past international congresses of zoology have been very largely European affairs. Of the fifteen previous congresses, all but one (that in Boston in 1907) were held in Europe, and, because of the distances involved, only a scattering of Americans attended them. Dr. Emil Witschi, European born but until recently a professor at Iowa State University, was among the few Americans who had attended with any regularity. He became increasingly concerned about the poor representation of Americans at the congresses and the general lack of interest in them on this side of the Atlantic. His concern was heightened by the fact that he had been made a member of the Permanent Committee responsible for the conduct and continuation of the congress series. He spoke on the topic of American participation at an annual meeting of the American Society of Zoologists in 1955. As a result, there was formed, under the aegis of that society, a "Committee on International Zoological Congresses," with Dr. Witschi as chairman. As a first step the committee engaged in the task of raising funds to increase American participation in the London Congress of 1958. Shortly, however, the committee began consideration of a more important project--that of planning for a congress in the United States. This possibility was brought before the American Society of Zoologists at its next annual meeting, that of 1956. The suggestion met with warm approval.

The year that followed was a busy one for the Society's committee. Contact was made with other societies interested in animal biology; eleven of them agreed to join with the American Society of Zoologists in the effort to have the 1963 Congress take place in the United States. It seemed clear, however, that it did not lie within the province of any one of the societies interested, even the American Society of Zoologists, to undertake the sponsorship of the invitation and the conduct of the Congress. It seemed equally clear, however, that the National Academy of Sciences, with the associated National Research Council, if willing, was the appropriate sponsor.

The proposal was put to the Academy and, to the delight of Dr. Witschi and his associates, accepted. Letters of invitation for the holding of the 1963 Congress were sent to the officers of the coming London Congress of 1958 and to the Permanent Committee. The invitation was warmly received by the Committee and accepted with applause at the final plenary session in London.

With this proposal by the Academy and its acceptance by the Zoological Congress and by the Permanent Committee, responsibility and direction now passed from the American Society of Zoologists to the National Academy of Sciences, and Dr. Witschi's committee was dissolved. The American Society of Zoologists is to be congratulated for having played a major part in the effort to bring the Congress to this country. And, most especially, it is evident that we owe a major debt of gratitude to Dr. Witschi, who initiated the proposal and worked with unflagging energy and enthusiasm toward its successful development.

A year after the London Congress, President Bronk of the National Academy of Sciences decreed that there be called into being an "Organizing Committee for the 1963 XVIth International Congress of Zoology." At this stage of the Congress preparations a major role was played by Dr. Paul Weiss, not only because of his activity in biological affairs in the Academy and National Research Council, but more especially because of his position as chairman of the U.S. National Committee of the International Union of Biological Societies--a group which was assuming responsibility for biological congresses of all sorts, and with which the Permanent Committee on Zoological Congresses was in the process of becoming affiliated. Our Congress owes much to Dr. Weiss's interest and to his brilliant suggestions as to the possible aims of the Congress and the steps which might be taken toward their attainment. Under his direction, after consultation with other animal biologists, there was formed an excellent committee of a dozen men, representing a broad spectrum of zoological areas. At a first meeting of this organizing committee, certain basic matters were decided upon. For a variety of reasons it seemed clear that Washington should be the place of meeting and August 1963 the time. I was presently asked to assume the presidency of the Congress, accepted, and met with the Committee in March 1960.

But before proceeding to formulate plans for the proposed congress, it was necessary to find an answer to one basic question which was in the minds of every member of the Organizing Committee for the XVI International Congress of Zoology. Over the decades of the present century, specialization and fragmentation has increased to the point where most workers in animal biology are interested only in their own specialties, and have little concern with--and often little regard for--the ultimate aim of all zoological work, an understanding of the nature and functioning of the organism as a whole. The field of zoology had distintegrated. Under these circumstances (we asked ourselves), was there any point or purpose in continuing a series of congresses concerned broadly with animal life?

If one meditates a bit on the history of biological thought and work during the past several centuries, a general pattern seems clear. At the beginning of modern scientific study of the animal

kingdom, once we had passed beyond the stage of the medieval bestiaries, there came into being a more concrete and well-founded area of knowledge of the nature and lives of animals--a "natural history" of a sort, necessarily of a rather superficial nature to begin with, but at least having the merit that one considered the animal as a total organism. But before long, with an increase in breadth and a beginning of depth in the study of animals, specialization began. First, essentially with Linnaeus, appeared systematics--a type of learning which will be with us as long as we remain imperfectly familiar with the countless thousands of animal species about us, and which has gained new vigor through alliance with the field of evolutionary theory. The early decades of the last century saw the emergence of the classic fields of physiology and morphology with, regrettably, a strong trend for the divorce of form and function. From then on more and more sub-fields began to make their appearance. In each, as research continued, the accumulation of data in volume and depth tended continually to increase, and it has become constantly more and more difficult for a worker in one compartment of zoology to make himself readily intelligible to his fellow scientist in another area. Each of us eagerly pursues his own special interest, digging, mole-like, deeper and deeper into his own little excavation, and generally remains ignorant of the discoveries of those mining elsewhere--discoveries which, if apprehended, would often aid and illuminate our own finds. And in all this specialized delving and burrowing, we are losing sight of the main objective of all our work. This objective is, of course, an understanding of the organism as a whole--what makes an animal "tick," to put it crudely; how he goes about his business of being an animal. The old-time naturalists did have a concept of the whole animal, even if this concept was a superficial one. Today, each biologist has a much better knowledge of some one fraction of the picture. But few of us can or do make any attempt to fit the pieces together. The animal has dissolved into fragments; and so has the science of zoology.

This, then, was the picture as we saw it, and (as I said above) our question to ourselves was whether, as a result of this fragmentation, there was any point or purpose in continuing a series of congresses concerned not merely with specialized areas, but with the broader, general problems of animal life.

Our unanimous answer to our own question was a resounding "Yes!" As we declared, in May 1962, in our Second Circular:

...it is becoming possible for zoologists to work once more toward the proper ultimate goal of all biological work, namely: an understanding of whole organisms, of how they have come into being and how they live together in nature. Biologists are discovering an undreamed-of similarity of structure and of function in all types of cells. The complexity of intracellular life itself, previously thought



to be nearly incomprehensible, is becoming understood in terms of relatively few major kinds of processes. The development and integration of the organism, morphological and behavioral adaptation, the interdependence of organisms in the natural setting--these and many other phenomena, hitherto studied largely as isolated questions, are being seen as parts of a more coherent whole. We are witnessing a rebirth of animal biology.

It was with this thesis in mind that we chose as the emblem of the Congress the phoenix--admirably portrayed on the Congress medal by artist Rudolf Freund--symbolizing, in its legendary rebirth from its ashes, our goal of initiating a reunion of zoology from its separate specialties.

Although we could hardly expect that a single meeting such as our Congress could in itself reverse a trend of long standing, we felt that a step in the right direction might be made by developing a congress program of novel type. Typically the program of such a congress consists mainly of individually submitted papers plus a series of special symposia, often very loosely organized. For the XVI Congress we proposed, and carried into effect, a program of a very different sort. Individual papers were accepted, as far as scheduling would permit, and some twenty-nine symposia were organized--for the most part well integrated and many of them coordinating two or more areas. But both individual offerings and special symposia were to be confined to the afternoons; all six mornings were to consist of plenary symposia, in which the ablest workers available were to present, to the entire Congress membership, the highlights of current knowledge of major fields of animal biology--genetic continuity, cell biology, development, evolution, phylogeny, behavior.

This plan was carried out and, judging by the comments of many members, achieved success. We believe that we have made a distinct contribution toward our goal of a phoenix-like rebirth of breadth of vision in the study of animal life.

I owe a major debt of gratitude to the host of people who aided in the preparation and execution of the Congress plans, and these are listed in the printed reports. Dr. Gairdner Mowbray of Goucher College assumed the very important but very time-consuming post of Secretary General, and labored tirelessly to carry out the multitude of tasks associated with this office. I was greatly pleased that Mr. Gerard Piel, President of the Scientific American, accepted the position of Finance Chairman, and aided in amassing the very considerable sum necessary for the Congress. Financial details are given elsewhere, but I cannot refrain from expressing our gratitude for the generous aid given us by the various government agencies; once they became acquainted with the nature of our plans, the amounts which they contributed came to more than we

had dared hope for. Most especially fortunate for Dr. Moment and myself proved to be the appointment of Dr. John A. Moore of Columbia University as Program Chairman. This post might have been (and sometimes has been, at other meetings) one of a routine nature, the chairman doing little more than accepting and scheduling submitted papers. Not so Dr. Moore. He took the word "program" in a broad sense of the term and, apart from the routine tasks, was primarily responsible for the selection of symposium speakers and the coordination of the program as a whole, acted as editor and publisher of our publications and took on a number of other items, all of which took many a potential burden off the shoulders of Dr. Moment and myself. I cannot refrain from special mention of his preparation of a guidebook to the city of Washington which was given to all Congress members; this is, to my mind, the most ably written--and entertaining--guide to the city that has ever been written.

As I write this, memories of the Congress are gradually fading into the past. But although those of us concerned with its work still remember (with occasional twinges of anguish) some of the imperfections and lapses in the execution of our plans, our memories are in general happy ones, in the feeling (expressed to us by many) that our efforts were, by and large, successful and that the Congress achieved its aims.

## REPORT OF THE SECRETARY-GENERAL

1. Introduction
2. Circularization and Registration
3. Languages
4. Cooperation of U.S. Government Departments and Agencies
5. American Institute of Biological Sciences
6. The Daily Phoenix
7. Special Exhibitions and Services
8. Local Committees
9. Travel Grants
10. Budget
11. Appreciations
12. Final Plenary Session

### 1. Introduction

The XVI International Congress of Zoology was the largest ever held, exceeding even the London Congress of 1958, which was the largest up to that date. Scientifically also the XVI Congress flourished under the wings of the Phoenix with its double symbolism of a reunion of Zoology from its separate specialties, and of an emphasis on the Organism reborn from its homogenized macromolecules.

The initial steps leading to the holding of the Congress in the United States taken by officers and other members of the American Society of Zoologists has been discussed in the Report of the President. The formal invitation was issued by the National Academy of Sciences which also was responsible for appointing the Organizing Committee from zoologists nominated by the various American societies in the field of zoology. By 1960 this group had named the officers of the Congress and, in a series of meetings, established the general guide lines for policy. A happy circumstance was an early visit by Professor Jean J. Baer so that his wide experience became available to us. The Secretary-General also gladly acknowledges a special debt to the officers of recent international congresses of genetics, botany, and entomology in Canada for their hospitality and for the wealth of extremely useful information which they bestowed upon him concerning a virtually endless number of matters vital to the effective organization of an international scientific congress. Many of the arrangements in Washington stem directly from the



Figure 2. Gairdner Moment, the Secretary-General of the Congress, and Ralph Buchsbaum.



Figure 3. B. L. Kropp (center) and T. M. Johnson (right) of the Academy staff who supervised many of the operations, such as the Registration Desks and transportation.

Canadian experience. The early consultations with the staff of the Federation of American Societies for Experimental Biology were also of very great value.

The Congress was fortunate also in the location of its headquarters in the National Academy of Sciences building. This arrangement, pleasant in itself, assured ready access to the seasoned wisdom of the Executive Secretary of the Division of Biology and Agriculture, Dr. Frank L. Campbell, and to the expertise of the Academy staff generally. A debt of gratitude is also due to the management of both the Shoreham and the Sheraton-Park hotels for many courtesies and for making all their public rooms available for the sessions of the Congress entirely without charge.

The Organizing Committee, in its early meetings, established two cardinal policies. The Congress should be truly international with active participation of zoologists from all parts of the world. The Committee was explicit in giving the strongest possible support to the "Resolution on Political Non-Discrimination" adopted by the International Council of Scientific Unions in October 1958 and endorsed by the National Academy of Sciences in April 1960. This resolution asserts the right of scientists of any country to associate in scientific activity without regard to race, religion, or political philosophy. The Organizing Committee also agreed that the circulars of the Congress should be printed in English, Spanish, French, German, and Russian.

The Organizing Committee also decided that the emphasis in the Congress should be on the organism as a whole, with the molecular aspects included to the extent that they relate directly to the total organism. Those problems which would pull together recent developments in different specialties were to receive emphasis. It was hoped that thereby one of the unique and important functions of a large congress would be achieved, viz., the fruitful confrontation of ideas and results from widely differing fields. The divergent views of those who wished to see the scientific program highly structured and those who felt that spontaneously offered papers should form the backbone of the program were reconciled and developed in a masterly way by the Program Chairman.

The Organizing Committee further determined that such funds as might become available for travel grants should be awarded by a special committee, with first consideration given to invited speakers and second consideration given to younger zoologists and those from parts of the world with currency problems, provided they could reasonably be expected to make a scientific contribution to the Congress. North American zoologists were declared ineligible for travel grants. As is customary, shortly before the opening of the Congress the Organizing Committee elected the Honorary Vice Presidents.

## 2. Circularization and Registration

The circulars, printed in each of the aforementioned five languages, were mailed according to the following schedule. The first in December 1961, the second in May 1962, and the third in October 1962. The first two circulars were sent to all members of the 1958 Congress and to all academies, institutes, universities, and individuals concerned with that meeting. For this purpose the Linnean Society of London very kindly furnished us with their XVth Congress card file of addresses. These two circulars also went to additional institutions of higher learning overseas and to the individual members of all the zoological societies affiliated with the American Institute of Biological Sciences and hence on their addressograph. Over 6,000 replies were received from these first circulars, approximately 3600 from the U.S. and approximately 2400 from overseas. The third circular was sent only on request and included forms for registration, for hotel reservations, and for the submission of scientific papers and films.

The cumulative total number of registrations is shown in the accompanying table. It will be noted that two values are given for August 12th. The smaller figure represents actual registration cards in the Congress office. The larger figure includes 393 additional names. Some were registered on Congress forms which they had sent directly to the Housing Bureau but without sending any registration information whatever to the Congress office. Others were on the program but not registered in either the Congress office or the Housing Bureau. Such is the nature of zoologists, 393 of us. Weekly registration rates were erratic but understandable in terms of deadlines, academic holidays and the like. The last week of February and the first week of March saw the highest totals, 115 and 165 respectively. The third week of January saw another peak with 111 new names, after which registrations fell to a record low of five two weeks later. In general, Europeans were very much more prompt than Americans in registering. There was only a handful of resignations.

### Cumulative Total Registrations

November 1962 - August 1963

November 30th	154	May 8th	1114
December 28th	266	June 6th	1333
January 30th	569	July 12th	1468
February 28th	796	August 12th	1755
March 28th	1079	(August 12th	2148)
April 5th	1086	August 27th	2466

The final registration figures by countries and by type of membership is shown in the table on pages 10 and 11. It will be noted

XVI International Congress of Zoology  
Geographical Distribution of Registrants

<u>Country</u>	<u>Number of Registrants</u>			
	<u>Total</u>	<u>Member</u>	<u>Associate Member</u>	<u>Student</u>
Algeria	2	1	1	-
Angola (Portuguese West Africa)	2	1	1	-
Argentina	15	11	4	-
Australia	16	13	-	3
Belgium	13	9	4	-
Brazil	11	11	-	-
Burma	1	-	-	1
Canada	107	75	13	19
Chile	3	2	1	-
Congo	4	3	1	-
Cuba	1	1	-	-
Czechoslovakia	5	5	-	-
Denmark	11	9	2	-
Dominican Republic	1	1	-	-
Egypt	2	2	-	-
Finland	3	2	1	-
Formosa	4	3	1	-
France	77	62	10	5
French West Africa	1	1	-	-
Gambia, West Africa	1	1	-	-
Germany	34	30	2	2
Great Britain	92	82	9	1
Guatemala	1	1	-	-
Hong Kong	3	3	-	-
Hungary	2	2	-	-
India	14	14	-	-
Iran	1	1	-	-
Ireland	2	1	1	-
Israel	3	3	-	-
Italy	37	30	7	-
Jamaica	2	2	-	-
Japan	31	25	4	2
Korea	4	4	-	-
Lebanon	1	1	-	-
Libya	2	1	1	-

Country	Number of Registrants			
	Total	Member	Associate Member	Student
Madagascar (Malagasy)	2	1	1	-
Malaya	1	1	-	-
Mexico	3	2	1	-
Morocco	1	1	-	-
Netherlands	26	24	2	-
New Zealand	2	2	-	-
Nigeria	2	2	-	-
Norway	1	1	-	-
Pakistan	3	2	1	-
Panama	2	2	-	-
Philippines	4	3	-	1
Poland	9	9	-	-
Portugal	1	1	-	-
Puerto Rico	11	10	1	-
Rhodesia	1	1	-	-
Romania	9	9	-	-
Singapore	2	2	-	-
South Africa	5	5	-	-
Spain	6	6	-	-
Sweden	5	5	-	-
Switzerland	17	15	2	-
Syria	1	1	-	-
Tanganyika	1	1	-	-
Thailand	2	1	-	1
Trinidad	3	3	-	-
Turkey	5	5	-	-
Union of Soviet Socialist Republics	10	10	-	-
United States	1809	1201	268	340
Uruguay	8	7	1	-
Venezuela	1	1	-	-
Vietnam	1	1	-	-
Yugoslavia	3	3	-	-
Totals	2466	1751	340	375



that the pattern of distribution is much the same as at the 1958 London Congress except for the host countries, which of course have a large number of members in each case. There was almost precisely the same number of countries represented, 66 and 67! In general there were fewer from European nations and more from Latin America.

The process of registration in the headquarters hotel was accomplished very smoothly, or so we were repeatedly told. It was certainly done without the proliferation of those long lines of waiting registrants which sometimes grow out from registration desks. Several factors combined to produce this happy result. A special Welcoming Committee met incoming zoologists at all local airports, railroad stations, and bus terminals. Succinct printed instructions were issued informing Congress members that they should proceed directly to their hotel rooms before they registered, listing the three major steps in registration and the location of the appropriate desks for each step, providing instructions about the handling of lantern slides, and indicating the location of the General Information and the Ladies Committee desks.

Of paramount importance was the exceptionally spacious two-level lobby of the Shoreham Hotel where registration took place. This ample area made possible the complete separation of pre-registrants from new registrants with several desks for each. It provided space for the work of the Housing Bureau representatives and for the General Information and Foreign Language Interpretation Center. The combination of the General Information Table and the multilingual interpretation aids proved to be a very useful one and can be highly recommended. The large and immediately adjacent lower lobby provided space where the registrants could pick up their four volumes of the Proceedings, select the excursion of their choice, consult the Program Chairman or his representative concerning problems arising from the presentation of papers and other matters, order reprints from the publisher's representative, and meet with members of the Ladies Committee.

Great credit must go to the Congress Staff and the Academy Staff (which rose to meet several unexpected crises), to the Washington Convention and Visitors Bureau, and to a dedicated group of volunteers for devoted work over long and often peculiarly irregular hours.

### 3. Languages

A firm majority of the Organizing Committee, including the Secretary-General, felt that it was important to provide simultaneous interpretation into French, German, Russian and Spanish, if we could possibly afford it. Such a service became possible through the generosity of the U.S. Department of State which lent its equipment, including head sets and interpreter's booths, to the Congress free

of charge. Nevertheless, interpreter's fees and other charges and costs necessitated an outlay of approximately \$10,000. The equipment plus this expenditure permitted professional simultaneous interpretation at all six morning plenary symposia and at the afternoon sessions held in the same hall. Whether this relatively large expense was fully justified remains a debatable point. A considerable number of individuals expressed sincere gratitude for this costly service. However, despite the hundreds of members from non-English speaking countries, no more than 75 head sets were ever used at any one time and some of these were used by Americans attempting to improve their foreign language ability. The Secretary-General attended one afternoon session when the French booth was inactive because the French interpreters had discovered (by asking for a show of hands) that no one was listening in French!

Interpretation at symposia (other than those just mentioned) and at sessions of contributed papers was impossible due to the great expense that would have been involved. The International Visitors Information Service provided the Congress with an excellent multilingual interpreter, linguistically competent and humanely perceptive, at the General Information Table in the main Registration area. In some respects this informal interpretation available to individuals with special problems and at virtually all hours was more useful than the interpretations during the plenary sessions.

#### 4. Cooperation of U.S. Government Departments and Agencies

Without the generous financial support, acknowledged elsewhere in this volume, of various governmental agencies--notably the National Science Foundation and the National Institutes of Health, but many others in addition--the Congress could not have been held, or certainly not in anything remotely resembling its actual form. We were also greatly indebted to these agencies for good counsel on many matters.

The U.S. Department of State also played a key role. From the earliest planning stages we benefited from the wide experience of the Science Adviser and his staff in the Department. Through its good offices our circulars and other information about the Congress reached U.S. Embassies and diplomatic posts around the world. Its generous loan of equipment for simultaneous interpretation has already been mentioned.

From the very start the Department of State was kept informed of the plans of the Congress organizers and knew of the determination of the Organizing Committee to make the XVIth Congress as truly international as any that had ever been held. This aim was fully supported by the Department. We were assured that although there is a law forbidding the granting of visas for entrance into this country of persons

holding certain religious and political beliefs, the same law provides that visas may be granted to such individuals if it can be shown, for example by the officers of such a congress as ours, that such action would be in the national interest. The Secretary-General found no difficulty in convincing the State Department personnel that a truly international scientific congress is of high importance for any nation. As a consequence, only in one or two cases was there any difficulty whatever in admitting zoologists from lands of all political affiliations and individuals of all shades of opinion. Of the great nations, only mainland China was unrepresented at the Congress. Although no scientist from mainland China registered as a member of the Congress, we received friendly letters of regret from some individuals.

Finally, we are indebted for the gracious act which made one of the lovely parlors on the eighth floor of the Department Building overlooking the city of Washington available for one of the affairs of the Ladies Committee.

##### 5. American Institute of Biological Sciences

The AIBS undertook responsibility for publicizing and organizing the Commercial Exhibits. Twenty-six commercial organizations, mostly publishers and manufacturers of scientific equipment, and eight scientific organizations, including the Zoological Society of London, bought space. The Congress made a modest profit from this enterprise and the Congress members were obviously interested in the exhibits.

The AIBS was also responsible for facilitating the exchange of information between zoologists from overseas who wished to lecture and visit in institutions of higher learning in the United States, Canada, and Mexico, and institutions which wished to receive such visitors. A letter was sent out in May 1962 to approximately 300 departments of zoology and biology asking about the extent of their interest in visitors from the Congress. Despite the fact that the Congress took place during the long summer vacation, twenty-six colleges in the United States, four in Canada, and one in Mexico indicated an interest in such visitors. Most offered travel and living expenses. A list of the approximately twenty-five zoologists who had written the AIBS of their interest in this program was sent, with their curriculum vitae, to the 300 schools and the list of interested institutions was sent to the zoologists who had written to Washington. Finally in May a list of overseas registrants was mailed to institutions in the United States, Canada, and Mexico. Since all the actual invitations and arrangements were made by the inviting institutions directly with the visitors, it is not possible to say how many campus visits were made although we have heard of a number of very successful cases.

The Congress is indebted to Dr. Hiden Cox and the members of the AIBS staff for continuing and extremely helpful advice in the planning and running of the Congress.

## 6. The DAILY PHOENIX

Based on the experience of several of the Canadian scientific congresses where it had been found that a daily newsheet was far more effective in getting last minute information to delegates than notices on a blackboard, a "newspaper," the Daily Phoenix, was published in mimeographed form during the Congress.

Dr. William T. Kabisch of the Staff of the American Association for the Advancement of Science served as the able and devoted editor. About 2,500 copies of each issue, ranging from four to twenty pages, were distributed at several points in the Congress hotels prior to each day's sessions. Program changes, announcements of special events, official and social assemblies, field trips, some personal notes, and daily lists of new registrants comprised the contents. The Daily Phoenix carried the Welcoming Message of the Secretary-General and the Farewell Message of the President, included herewith. It also recorded the first known field sighting of the living phoenix in the Nearctic Realm, an event which occurred in the city of Washington on August 24th, if the observers were not mistaken.

Number One

20 August 1963

### WELCOME TO THE XVI INTERNATIONAL CONGRESS OF ZOOLOGY

It is a high honor, as well as a pleasure, to welcome all of you to the XVI International Congress of Zoology, most especially on behalf of the many people who have worked hard on the several local committees to ensure the success of our meeting. By yesterday, registrations totaled 2148 with zoologists from more than 60 countries.

The Organizing Committee of the XVI Congress is orthodox in its firm conviction that a scientific congress should never be used for political purposes. Science belongs to humanity. We stand squarely on the 1958 "Resolution on Political Non-Discrimination" of the International Council of Scientific Unions, which affirms "the right of the scientists of any country or territory to adhere to, or to associate with, international scientific activity without regard to race, religion, or political philosophy." This resolution



Figure 4. Simultaneous Interpretation.



Figure 5. S. Krishnaswamy (India) and E. S. Hodgson (U.S.A.)

was endorsed in 1960 by the National Academy of Sciences - National Research Council of Washington, official host to the Congress. We are proud of the diversity of peoples and cultures present here. Only one major nation is not represented. We regret that despite our specific and cordial invitation, no zoologists from Communist China have arrived.

The universal language of the future we suppose will be some variety of "beche-de-mer," in other words, Pidgin-English, much as English itself is the hybrid offspring of French and German. We hope you will attribute its undisciplined and sometimes rambunctious character to heterosis and forgive it. Meanwhile we must do the best we can with our inconvenient if happy variety of languages. Simultaneous interpretation of scientific sessions is very expensive. We have tried to provide the maximum our funds would permit. We are indebted to the Department of State, which has most generously made its interpretation equipment available to us.

We hope the weather will be kind. Remember Washington is well south of the latitude of Naples and is said to have a climate like that of Kyoto, one of the most ancient and beautiful of cities. At least we are in good company and we know that the phoenix flourishes best when the heat is greatest.

Gairdner B. Moment  
Secretary-General

\* \* \*

Number Eight

27 August 1963

#### AVE ATQUE VALE

In the first issue of the Daily Phoenix, Dr. Moment, Secretary-General, bade you welcome. In this final issue, may I, as President, bid you farewell. The efforts of a very large number of people have been centered on the endeavor to make this Congress a success, to make this meeting one of pleasure and benefit to you. We hope that you have enjoyed your stay with us, that you have profited intellectually, and that we have achieved at least to a modest degree our ambition (as symbolized by our emblem, the Phoenix) to broaden our concepts of zoology in all its aspects.

May I ask a final favor of you? This afternoon at 16:00 the final plenary session of the Congress will be held. Many of you, I suspect, will be inclined to skip this session (as potentially boring) in favor of packing, relaxing from your intellectual labors, or having a final drink with friends. I can assure you, however, that the session will be short, with only a few resolutions to be approved. And I would appreciate it if we might gather together for the last time to say farewell to one another.

Alfred S. Romer, President  
XVI International Congress of Zoology

\* \* \*

All editorial and production work was done after the 4:00 P.M. daily deadline. Staff included one editor, two or three typists and several mimeographers and collators each of whom worked eight to ten hours each evening. The Daily Phoenix was well received judged by the rapidity with which at least 2000 copies disappeared every day and by the comments and thanks of Congress members. It was clear that all those who should have read notices in it did not always do so, but the consensus was equally clear that the Daily Phoenix proved to be a highly effective way of reaching a vast majority of the Congress.

#### 7. Special Exhibitions and Services

Many organizations arranged special events of various kinds for members of the Congress. Both the Smithsonian Institution and the Library of Congress mounted distinguished and very handsome exhibits. The National Institutes of Health, the U.S. Department of Agriculture, the Fish and Wildlife Service, the U.S. Naval Medical Research Institute, the Armed Forces Institute of Pathology, American University, Catholic University, Howard University, and others entertained members of the Congress in one way or another. The American Association for the Advancement of Science contributed the full-time services of a staff member. Several embassies invited members of the Congress to special receptions.

#### 8. Local Committees

The Secretary-General served as his own local chairman, a circumstance made possible only because the President and the Program

Chairman were capable of work of heroic dimensions. Once a corps of about twenty competent and dedicated individuals had been recruited as chairmen of specific committees, it remained only to enlist appropriate members of each committee and to work with these volunteers in carrying out their specific functions. It is a tribute to the zoologists of the Washington area that recruitment was such an easy and pleasant task. The Congress owes them a great debt for their long hours of largely anonymous toil.

An extremely useful device was the holding, during August in the Congress hotels, of two general meetings of all the Chairmen of Local Committees, the Congress Executive Committee, the Congress Staff, and various others concerned with the Congress. Each chairman presented a state-of-the-union report for his own area of responsibility. In this way all members came to know each other by sight, gained a far better understanding of how the Congress as a whole would function, became familiar with the two hotels in which the Congress would meet, and had an opportunity to ask questions about procedures and to receive the benefit of criticisms and suggestions.

#### 9. Travel Grants

The Chairman of the Travel Grants Committee, Dr. C. Ladd Prosser, reports as follows: "The Travel Grants Committee attempted to assist zoologists from outside the United States and Canada who could not otherwise attend the Congress. Since this was the first Congress of Zoology in America in 56 years, it seemed important for the United States to help as many zoologists as possible reach this country. It was agreed that invited speakers in plenary sessions and symposia would be supported but that they would be urged to obtain local funds whenever possible. However, approximately half of the travel allocation went for these invited speakers. From persons who would present contributed papers, approximately four times as much money was requested as was available. The Committee gave special consideration to relatively young zoologists, to those who had not previously attended international meetings, and to those whose research seemed to fit the theme of the Congress of the unity of zoology. Advice was sought from specialists in many parts of the world. Usually less was granted than was requested and group flights at reduced rates were encouraged. Whenever possible, American travel grant support was combined with that from the recipient or his country. Many individuals were referred to special funds where these applied. The net effect was that a total of 149 persons from outside the United States attended the Congress with either partial or total travel assistance. Seventy-one participants in symposia were assisted and seventy-eight others received at least partial support. The contributions from governmental and other agencies made possible a truly international flavor in the Congress."



The list of the 41 countries represented among those who received travel grants follows:

Argentina	Jamaica
Australia	Katanga
Belgium	Kenya
Brazil	Korea
Canada	Mexico
Czechoslovakia	Netherlands
Denmark	Nigeria
Egypt	Pakistan
Finland	Philippines
Formosa	Poland
France	Senegal
Germany	Spain
Great Britain	Sweden
Hong Kong	Switzerland
India	Tanganyika
Indonesia	Thailand
Iran	Trinidad
Israel	Turkey
Italy	Union of So. Africa
Japan	United States
	Uruguay

The Congress Office prepared a dossier for each applicant. The Grants Committee made the initial selections and set up a list of candidates in the order in which grants should be made as more funds became available. Nevertheless, a major portion of the time of the Secretary-General during the last months before the Congress was occupied with a wide variety of problems involved with the selection of the additional recipients and the administration of the grants. Many, but by no means all, of these problems arose because of a change in the international rules governing eligibility for reduced fares in group flights. The help of the American Express Co., Pan American Airways, and the staff of the Federation of American Societies for Experimental Biology is gratefully acknowledged.

#### 10. Budget

The Finance Chairman has reported elsewhere in this volume on the budget and the sources of funds. Suffice it to say here that the budget was constructed after careful study of the budgetary experience of similar congresses both in Canada and in the United States. It early became apparent that it would be necessary to establish a system of priorities for all the multiform projected activities. Happily, it was possible in the end to assign by far the

largest allotment to travel grants. The final figure almost equalled the sum of the next three most expensive items, viz., printing and duplication, staff salaries and personnel, meeting facilities and supplies.

The importance of the services of a business manager with ample time to prepare a complete monthly financial statement cannot be overemphasized. During the final two months before the actual meeting, weekly reports should be available.

#### 11. Appreciations

It remains but to acknowledge the many sincere expressions of appreciation received from large numbers of the Congress members representing virtually all parts of the world. Organizers of future congresses might note especially the very large number of highly favorable comments on the tripartite plan for the scientific sessions with plenary symposia in the morning and specialized symposia and contributed papers in the afternoon. There were also many expressions of gratitude and approval for the smooth functioning of all the Congress activities, for the special issue of the American Zoologist, the field trips, and, of course, the travel grants. We can only hope the Congress was half as good as we were told and offer the assurance that the many individuals who helped plan, organize, and produce the Congress felt honored to do so.

#### 12. Final Plenary Session

The final plenary session was convened in Sheraton Hall on Tuesday afternoon, 27 August 1963, with President Alfred S. Romer presiding.

The first item of business was a resolution in support of the Zoological Record. This resolution, passed by acclamation, is as follows:

The members of the XVI International Congress of Zoology assembled in Washington, D.C. on this twenty-seventh day of August 1963, being mindful of the singular importance of the Zoological Record to all research workers in animal biology and its vital contribution to the advancement of scientific knowledge, and being aware of the increasingly serious problems facing the compilers as the volume of literature grows, desire to record their grateful appreciation to their British colleagues for their selfless and dedicated service and strongly urge that every effort be made to continue publication of this unique bibliographic instrument.

The President then presented a resolution commending the International Council of Scientific Unions for inaugurating the International Biological Program and urging zoologists throughout the world to support this far-reaching project. This resolution, which was enthusiastically passed, is as follows:

The XVI International Congress of Zoology, recognizing the need for intensified research in the biological sciences, especially cooperative effort on an international scale, commends the International Council of Scientific Unions for the inauguration of an International Biological Program which stresses the biological basis of productivity and human welfare, and encourages zoologists throughout the world to participate in the development and carrying out of research as part of the IBP individually and through their scientific societies, national academies, research institutions, universities, and other bodies concerned with the advancement of science.

The new constitution of the International Commission on Zoological Nomenclature was then ratified by the Congress as a whole, it being understood that the Commission itself was strongly and virtually unanimously in favor of its adoption. The Report of the Section on Nomenclature was then presented. After some discussion from the floor, the various recommendations relating to several articles in the Code were adopted. The names of twelve zoologists were presented who had been nominated by the Section to become members of the Commission. These twelve zoologists were elected without dissent. The report, including the twelve names, follows:

As was announced, the International Commission on Zoological Nomenclature, which functions under authority of the Congress, held public sessions on August 19 and 20. A further public session was held on August 21, and an executive session on August 22. The results of the deliberations were reported to the Section on Nomenclature, which met through the afternoon of August 23.

At the several public sessions of the International Commission and at the Section meeting, full consideration was given to the Report on the Work Carried out by the International Commission on Zoological Nomenclature in the Five-Year Period 1958-1963, by Acting Secretary, W. E. China; to this was appended for the Section meeting a report on the Washington meetings (see page 57; a revised version of this report will appear in the Bulletin of Zoological Nomenclature).

Through its Section on Nomenclature the Congress is duly apprised of the following actions:

- (1) Incorporation into the International Code of Zoological Nomenclature of Declaration No. 40, as Article 30(a)(4)(ii).
- (2) Decision to redraft Declaration No. 41.
- (3) Intention to issue Declarations on various Cases.

No action is called for on the foregoing items, but it is noted that at the Section meeting, motions to delete Article 23b of the Code (entitled Limitation) and to instruct the Commission to redraft this Article along suggested lines were declared by the Chairman out of order, inasmuch as the Code provides that amendments to the Code must be initiated by the Commission. The Section then passed a motion expressing a sense of approval of the suggested rewording of Article 23b, and a sense of desiring deletion of Article 23b was expressed. The Commission had indicated its intention to issue a Declaration on this Article.

Specific recommendations of this Section that call for approval or rejection by the Plenary Session of the Congress follow:

- (1) That the Constitution of the International Commission on Zoological Nomenclature be adopted;
- (2) That Article 11d of the Code be emended to read as follows:

"A name first published as a synonym is not thereby made available unless prior to 1961 it has been treated as an available name with its original date and authorship, and either adopted as the name of a taxon or used as a senior homonym."

- (3) That Article 39, Section (a) be deleted from the Code;
- (4) That Article 31 of the Code be reduced to a Recommendation, with the necessary change in wording in the Code.
- (5) That the following zoologists be elected to the Commission: do Amaral, Vokes, Stoll, Holthuis, Miller, Mayr, Ride, Kraus, Hubbs, Sabrosky, Forest, and, subject to his agreement to serve, G.G. Simpson.

Professor Jean G. Baer, Chairman of the Permanent Committee for the International Congresses of Zoology, presented a request from the Permanent Committee for "the necessary authority:

- 1) to include all the members of the Comité Permanent in the Board of the Division of Zoology of the International Union of Biological Sciences (IUBS),
- 2) to recognize the Board of the Division of Zoology of IUBS as the international body of zoologists responsible for maintaining the continuity of Zoological Congresses,
- 3) to consider that henceforth the role of the Comité Permanent would be assumed by the Board of the Division of Zoology of IUBS on a much broader basis than before and that it would be undesirable to maintain two similar international bodies,
- 4) to authorize the Comité Permanent to accept the proposal put before it by the Division of Zoology of IUBS, pending that the reorganization of this Division be adopted by the General Assembly of IUBS in 1964."

This authority was thereupon voted by the plenary session of the Congress.

President Romer then publicly acknowledged the deep debt of gratitude owed to the many individuals and organizations which had contributed of their time, money, and talents to the Congress. Special kudos went to all the various governmental agencies, particularly the National Science Foundation and the National Institutes of Health, but to many others as well, whose massive financial support had made the Congress possible. A list of the contributors to the Congress appears elsewhere in this volume. In addition, the State Department had assisted in numerous ways, notably by lending its equipment for simultaneous translation. Finally the Congress stood indebted to the Shoreham and Sheraton-Park Hotels which had placed all of their public rooms at the disposal of the Congress without charge. Dr. Theodore C. Byerly, Chairman of the Division of Biology and Agriculture of the National Academy of Sciences-National Research Council, presented President Romer with a Congress medal cast in gold. President Romer in turn presented a similar token to the Secretary-General and the Program Chairman.

President Romer then turned the meeting over to Professor Baer. In his closing statement Professor Baer observed that this was the largest in the long history of International Congresses of Zoology, and that its success both in respect to attendance of zoologists from all parts of the world and of many diverse interests, and in respect to the quality of the sessions had assured the continuance of the congresses. He spoke also of the importance of science as

the only firm basis on which to build a stable and peaceful world and of the necessity of regarding science as a universal human enterprise aimed at the increase of knowledge rather than thinking of science solely as technology.

Professor Baer announced that the Permanent Committee had received a tentative invitation to hold the next Congress in 1968 in Delhi, India. The Committee sincerely hopes that this invitation can become firm because it is an invitation which would be accepted with pleasure.\*

Professor Baer expressed the thanks of all the overseas members of the Congress to the Officers, the Organizing Committee, and all others who had helped make the Congress a success. He then declared the XVI International Congress of Zoology at an end.

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\* This invitation had to be withdrawn because of lack of funds.

## REPORT OF THE FINANCE CHAIRMAN

In the early days of planning for our Congress a little elementary arithmetic showed what the financial problem would be. We guessed we would have about 2,500 members and we estimated our costs at the round number of \$150,000. The cost per member, therefore, would be \$60. It was impractical to set the registration fee at \$60 and thereby require each member to pay a proportionate share of the total expenses. The figure of \$25 per Active Member was thought, however, to be reasonable, and the registration fee was set accordingly. Provided that 2,500 zoologists registered, therefore, members of the Congress would subscribe \$62,500 of the total cost. The remainder, nearly \$100,000, had to come from "other sources."

To this figure we determined, at an early date in the planning of the Congress, that we should add another \$100,000 for travel grants. Such a fund would help to reduce the economic barriers that would work especially against scientists from countries whose economies had foreign exchange difficulties, and we felt a strong obligation to make our Congress fully representative of the international community of zoologists. Over and above the estimated yield from registration fees, therefore, we determined to raise \$200,000.

With this large round number as our objective, it was clear that the "other sources" would have to include in a dominant way the United States Government. Although we made strenuous efforts to secure support from foundations, scientific societies, industrial organizations and individuals, these sources did not, in the end, yield large sums of money.

Fortunately, various agencies of the United States Government did find it possible to give massive support to the Congress. Table 1 shows the major categories and items of income. The first subtotal of \$200,650 speaks for the recognition on the part of many agencies of the U. S. Government that zoology has a central place in the sciences that bear upon the welfare of society. Without their aid it would have been impossible for our Congress to have been held. The grant from the National Science Foundation was of special importance since it, being our first, made possible the early stages of planning for the Congress.

The much smaller sums secured from non-governmental sources were significantly out of proportion to their size; for they financed a number of essential or simply desirable expenditures for which government funds could not properly be spent. Eleven scientific societies contributed. Here special mention should be made of the

American Society of Zoologists. President Romer has already mentioned the important role of the Society in bringing the Congress to the United States. The Society also made outright grants and asked its members to make individual contributions. The total contribution from the Society and its members came to \$5,080; this was enough for about 10 travel grants to enable overseas members to attend the Congress. Another generous contribution deserves special acknowledgment here: the \$10,000 grant of The Rockefeller Foundation to the unrestricted funds of the Congress.

The expenses are listed in Table 2, grouped in three main categories: the expenses of the Office of the Secretary-General, broadly interpreted; items supplied to the members, including travel grants; and the additional direct expenses of staging the Congress itself.

Fortunately the expenses have been less than income. To some extent this was luck: we could not know until after the Congress had ended the exact total of our exact income and expenses. Many bills for expenditures before and during the Congress were received after the Congress had adjourned. Furthermore, of the final total of 2,466 members, 703 registered during the week of the Congress. With our books not completely closed (at this writing, for example, the printing bill for this Volume V has not yet been incurred) we are a little less than 10 per cent in the black. We might, as easily, have found ourselves 10 per cent in the red! That we did end in the black is due also to the acumen of Mr. Robert Harvey and his associates in the Business Office of the National Academy of Sciences. As of August 31, 1964 there remained a balance of \$24,457. This will be used mainly for the publication and distribution of Volumes 5, 7, 8 and 9 of the Proceedings. The balance unexpended when the books are closed will be held in trust by the National Academy of Sciences for the Division of Zoology of the International Union of Biological Sciences for use by the Organizing Committee of the XVII International Congress of Zoology in financing the travel of scientists from underdeveloped countries to that Congress, provided that each dollar contributed from this fund for this purpose be matched from other sources and that any balance not so matched be used to finance the travel of U. S. scientists to that Congress.

We were gratified to have a solvent Congress but the fact remains that \$255,822 is a large amount of money and one that might prove impossible for some small nations that might like to sponsor an International Congress of Zoology. With this in mind, it is important to ask if there are ways of reducing expenses. There certainly are; it is even possible that a congress of this size, though not of this complexity, could be run on the registration fees alone.

The first point to be made is that costs in the United States are sometimes more than in other countries. Apart from this, most





Figure 6. H. G. VEVERS (U.K.), R. A. BOOLOOTIAN (U.S.A.), and A. FARMANFARMAIAN (Iran).



Figure 7. J. M. ANDERSON (U.S.A.) and A. M. CHRISTENSEN (Denmark).

items in Table 2 could be reduced. The expenses related to the Office of the Secretary-General were in part a consequence of its situation in the National Academy of Sciences. Since the Academy has no endowment for such purposes, it was compelled to bill the Congress for its services in order to recover its costs. Much of this expense could be avoided by future congresses if a sponsoring organization could be found which could donate space and, if possible, some services of its personnel. For example, in our Congress, the very heavy correspondence of the Program Chairman was handled by the office of the Department of Zoology of Columbia University. This amounted to the donation to the Congress by the University of the equivalent of one half-time secretary for two years.

The two items--"Communications and Shipping" and "Printing Announcements, Forms, Directories, etc."--totalled nearly \$26,000. Most of this consisted of the expenses of printing and mailing the Congress circulars. Heavy expenses were incurred the moment we decided to publish the call to the Congress in five languages. It is far more economical to use one language, and many international congresses have done so. The complexity of printing a circular in five languages was such that the release of each circular was greatly delayed and in the case of the third circular we were compelled to use airmail to overseas addresses in order to recover the lost time.

Our experience suggests the need to reconsider the custom--observed especially by zoological congresses--of mailing announcements widely. The mailing list for our first two circulars was over 20,000. If one is to run a congress in the most economical way, possibly the printing of announcements in general scientific journals, such as Nature, Experimentia, and Science, and in the journals of zoology published in various countries would suffice. The reader could then write to the congress office, stating his interest in receiving future communications. With this system the costs and the workload in the Secretary-General's office would be far less.

Items such as "Public Information Services" and "Visiting Lecturers' Programs" could be omitted if extreme economy is in order. (Both could be handled by volunteers.) "Staff and Committee Travel" was large for several reasons. First, the United States is a large country, and it was costly to assemble the Organizing Committee even for infrequent meetings. Second, not one of the key officers of the Congress--President, Secretary-General, Program Chairman and Finance Chairman--resided in Washington where the Congress office was situated. Hence all had to travel for their frequent meetings. Some other nations could easily select a single city where the four officers could be found in residence.

If one instituted the economies mentioned above, and relied more on volunteer help, the item "Office of the Secretary-General" could probably be reduced to \$25,000.

In the second major category, "Items Supplied to Members," large reductions could be made. The Commemorative Medal was beautiful but not necessary in a regimen of strict economy. The registration kit was neither beautiful nor essential--just useful. Our publication program could have been more modest. A single volume of 1,068 pages was issued for the XV Congress. Our Congress will have 11 volumes (9 of Proceedings, the Guide to Washington and the Program) which will total about 2,700 pages. To be sure, all but Volume 6 are to be published by photo-offset from typed copy, which is a most economical method. Volume 6 will be set in type, but the publisher is providing copies for each member at no cost to the Congress.

The largest item supplied to members is "Travel Grants." While we did not achieve our travel-grant goal of \$100,000, we missed it by only a little more than 10 per cent. But the cost of travel need not be the responsibility of the organizers of an international scientific congress. It is quite unreasonable to expect some small countries to raise large amounts of money to support the travel of those coming to a congress within its borders. The responsibilities of a host need not extend that far, and there have been numerous congresses in the past that have used none or almost none of their funds for travel grants.

Possibly the time has come to re-examine the whole travel-grant question. In the Secretary-General's report there is a list of the countries-of-origin of members who received travel grants. Many of the countries on that list are clearly able to support the travel of their scientists to international meetings. Could the problem of travel grants be turned over to our Permanent Committee (soon to be amalgamated with the Board of the Division of Zoology of the International Union of Biological Sciences--see p. 24) which has as its main function the arranging of the International Congresses of Zoology? Possibly the Committee could assume the responsibility for:

- a) encouraging governmental agencies, foundations, societies, and universities of all nations to support the travel of their scientists to International Congresses of Zoology (possibly this should be a general responsibility of IUBS for all biological congresses and of ICSU for all scientific congresses).
- b) soliciting funds on an international scale to support the travel of scientists to International Congresses of Zoology. These funds would be given to the Organizing Committee of the XVII International Congress of Zoology, which would use them primarily for biologists from underdeveloped countries.

Our expense for social events was small. In the first place, the decision was taken early that our extra funds should go to Travel Grants. There is a further reason: no support from the United States Governmental Agencies was (or could be) used for entertainment, and it was the United States Government that supplied the bulk of our income. Two social events, the concert of the Mozart Trio and the evening at the National Gallery of Art were made possible through donations by two individuals. The latter donation does not appear on the books of the Congress; the happy inspiration of our Program Chairman John A. Moore that the National Gallery of Art would furnish an appropriate setting for the President's reception was realized through Professor Moore's own generous outlay to cover attendant expense being made directly to the Gallery.

With strict economy the second major category in our statement could be cut in a future congress from \$131,906 to something in the neighborhood of \$30,000.

The third major category of expenses--"Expenses at the Congress"--could be cut almost in half by eliminating the item: "Simultaneous Interpretation." This was an expensive courtesy. The organizers of many international congresses think it unnecessary to make such service available. On the other hand, there is one item in the third category that should be spared the constraints of economy--"Projection and Public Address Services." The best available service and equipment is the minimum requirement for a successful congress. Nevertheless, this third category in our statement could be reduced to \$10,000 or less.

With stringent economies of the type indicated, the expenses of an International Congress of Zoology of the size of ours could be reduced to a minimum of about \$65,000 even in a relatively high-cost economy such as that of the United States.

We hope this reckoning will reassure scientists who are citizens of countries where it would be impossible to secure and perhaps even improper to propose the outlay of \$250,000 for an international scientific congress. A congress budgeted at \$65,000 for 2,500 members would cost \$26 per member. Some international congresses are even now setting the registration fee at \$35. It is not unreasonable to assume, therefore, that the minimum expenses of an international congress can be met from registration fees alone. One could even go so far as to say this should be a general rule. The scientists of the host country could then add, according to their desires and resources, any embellishments such as more publications, more excursions, more entertainment and more travel grants. There is much to be said for keeping the basic structural costs of our congresses low enough to allow any nation to be the host.

Table 1

XVI International Congress of Zoology

Income  
to August 31, 1964

	<u>Amount</u>	<u>Sub Totals</u>
<u>United States Government</u>		
National Science Foundation	\$70,650	
Department of Agriculture	10,000	
National Institutes of Health	50,000	
Department of the Air Force	5,000	
Office of Naval Research	15,000	
National Aeronautics and Space Administration	20,000	
Atomic Energy Commission	20,000	
Department of the Interior	<u>10,000</u>	
		\$200,650
<u>Scientific Societies</u>		
American Medical Association	500	
American Ornithologists' Union	250	
American Society of Zoologists	5,080	
American Society of Mammalogists	250	
Entomological Society of America	500	
Society for the Study of Development and Growth	147	
Society for the Study of Evolution	20	
Society of General Physiologists	250	
Society of Protozoologists	610	
Society of Systematic Zoology	200	
Wildlife Society	<u>300</u>	
		8,107
<u>Foundations</u>		
Old Dominion Foundation	1,000	
The Rockefeller Foundation	<u>10,000</u>	
		11,000

(cont'd).

Table 1 (cont'd.)

	<u>Amount</u>	<u>Sub Totals</u>
<u>Industrial Organizations</u>		
Commercial Solvents Corporation	100	
E.I. du Pont de Nemours & Company	1,000	
The Lilly Research Laboratories	500	
Monsanto Chemical Company	500	
Moorman Manufacturing Company	200	
The Upjohn Company	<u>500</u>	2,800
<u>Others</u>		
Gerard Piel	500	
The Population Council, Inc.	1,000	
SCIENTIFIC AMERICAN	<u>1,000</u>	2,500
<u>Sale of Publications</u>		627
<u>Registration Fees</u>		
1,751 Active Members	43,775	
715 Associates and Student Members	<u>7,150</u>	50,925
<u>Investment Income</u>		346
<u>Net Commercial Exhibit Income</u>		727
<u>Excursion Ticket Sales</u>		<u>2,597</u>
Total Income		\$280,279

Table 2

XVI International Congress of Zoology

Expenses  
to August 31, 1964

	<u>Amount</u>	<u>Sub Totals</u>
<u>Office of the Secretary-General</u>		
Salaries, Social Security and Pension Costs	\$27,129	
Borrowed Personnel	8,012	
Public Information Services	1,000	
Staff and Committee Travel	9,712	
Communications and Shipping	9,660	
Other Expenses and Supplies	3,866	
Printing of Announcements, Forms, Directories, etc.	16,293	
Visiting Lecturers' Program	721	
Distribution Costs for Publications	367	
Indirect Costs of Administration (National Academy of Sciences)	<u>29,309</u>	
		\$106,069
<u>Items Supplied to Members</u>		
Program, Guide to Washington, Proceedings Vol. 1-4	19,258	
Commemorative Medals	6,888	
Registration Kits	1,225	
Travel Grants	89,855	
Excursions and Social Events	<u>14,680</u>	
		131,906
<u>Expenses at the Congress</u>		
Projection and Public Address Services	6,910	
Simultaneous Interpretation	7,743	
Hotel Services	2,634	
Insurance and Guard Services	<u>560</u>	
		<u>17,847</u>
Total Expenses		\$255,822

## REPORT OF THE PROGRAM CHAIRMAN

John A. Moore

The specific responsibilities assigned to the Program Chairman were as follows: the Scientific Program; Congress publications; the Congress Medal; the Evening Receptions; and, together with Gerard Piel, the Music Program. Each of these will be discussed in terms of plans, execution of the plans, difficulties encountered, and suggestions for improvement.

### The Scientific Program

Traditionally, international congresses in biology attempt to be all things to all men. The members assemble to listen to talks on the latest developments in their own field, to be brought up to date in cognate fields; to present their own work; to discuss informally subjects of mutual interest with their fellow scientists; to visit the commercial exhibits where they may find equipment, supplies, and publications related to their research and teaching; to visit nearby biological institutions; and, last but not least, to combine business and pleasure in a brief vacation, which may be all the more successful if the congress is held in an area of beauty and interest.

In its earliest discussions, the Organizing Committee of the XVI International Congress of Zoology emphasized the need for making the Congress somewhat different from those held previously. President Romer has discussed the Committee's philosophy. The main directive that was given the Program Chairman was that the Congress should emphasize broad biological principles and so reflect the fact that zoology is fast leaving its specific and compartmentalized past to merge with related fields as an increasingly conceptual field of biology. But while biology is becoming more unified, its practitioners are becoming more specialized--losing intellectual contact with their zoological neighbors. Hence the desire to give a broad view of the whole field of animal biology in the Plenary Symposia. In addition, the Congress was to avoid, so far as possible, the breathless busyness that characterizes so many large scientific meetings. A relaxed atmosphere is a more suitable environment for the scientific goal of a congress, but this goal is difficult to attain: one cannot assemble



more than 2000 deeply motivated and highly independent human beings in a small space and expect the quiet peace of the Lyceum.

### Coordination

Approximately 1000 individuals representing many different groups actively participated in the Scientific Program of the Congress. The main groups were the Organizing Committee, speakers in the Plenary Symposia, Organizers of Specialized Symposia, speakers in Specialized Symposia, Organizers of Science and Man Symposia, speakers in Science and Man Symposia, those responsible for Scientific Demonstrations, the Science Theater, those responsible for arranging for the projection of slides and film, the staff of the Congress Office (at the National Academy of Sciences), and those giving Contributed Papers.

All of these groups except the last were involved in the scientific program from the earliest stages. (The identity of the members who were to give Contributed Papers was not known until a few months before the Congress was held.) In addition, those concerned with Travel Grants, Excursions, Public Information, The Ladies Committee, Commercial Exhibits, and the Welcoming Committee had to be kept informed of the developing plan of the scientific program. In all about 400 individuals required information.

These various groups kept informed by a series of memos and reports, especially by the Program Reports. Eight of these were issued as follows:

1. February 6, 1961	3 pages
2. October 20, 1961	3 pages
3. February 10, 1962	7 pages
4. April 15, 1962	8 pages
5. August 29, 1962	10 pages
6. October 25, 1962	12 pages
7. February 2, 1963	25 pages
8. May 14, 1963	92 pages

The final printed Program, which was distributed at the Congress, went to press July 1, 1963. Each of these reports listed all the speakers and the titles of their talks known at the time. Those concerned with specific parts of the program could, therefore, relate their efforts to the program as a whole. It was also possible for them to make certain that their activities were listed correctly. It may seem to those unfamiliar with the problem of organizing a program of this sort that a surfeit of reports were issued. This seems not to have been the case. The Organizers of Symposia and others actively working for the Congress found it necessary to have up-to-date information.

It should also be mentioned that whenever zoologists wrote in asking for details of the scientific program they were sent copies of the most recent report. In addition, the long report of May 14, 1963 (which was very similar to the final printed Program), was sent to nearly all departments of zoology in major universities in the United States. In all nearly 1,000 copies of this report were sent throughout the world so it was possible for many zoologists to obtain nearly complete information about the Congress several months before it began.

These Program Reports had a beneficial effect on the Congress itself. Since they had been so widely distributed, at least one member in every four was reasonably well informed of the organization of the Program. In retrospect, one can probably credit much of the smoothness and relaxed nature of the Congress itself to this large nucleus of well informed, and hence helpful members.

The scientific program was divided into Plenary Symposia, Specialized Symposia, Science and Man Symposia, Contributed Papers Sessions, the Science Theater, and Scientific Demonstrations. Early in planning for the Congress, full responsibility for the Science Theater was assumed by Richard A. Boolootian and for the Scientific Demonstrations by Ira Hanson. Boolootian's report appears elsewhere in this volume.

#### Plenary Symposia

The Program of the XVI Congress differed most notably from that of its predecessors in the Plenary Symposia. The goal here was to select outstanding individuals in some of the more active areas of biology and to have them present a critical appraisal of the major conceptual schemes that are presently used in interpreting the data of these areas. The Plenary Symposia were held during the mornings and there were no competing activities.

The Plenary Symposia as a whole were truly outstanding and many of the individual lectures were remarkably brilliant. One of the most interesting and heartening things that emerged from the Plenary Symposia was the realization that biology is developing as a truly unified science with a large measure of conceptual coherence. It is not an exaggeration to say that the Plenary Symposia gave many in the audience a much greater feeling of pride in being biologists. Some of the intellectual feats in their field could rival those in any branch of science. So many members went out of their way to tell me how exceedingly valuable the Plenary Symposia were to them--"by far the most useful part of the program"--that I am inclined to believe this to be a general opinion.

The Plenary Symposium "Behavior" was organized by John Emlen. The topics and speakers for the others were selected by me after long conversation with many biologists. All speakers received copies of the Program Reports and, in addition, five special memos discussing specific problems of the Plenary Symposia.

Considering the importance of the Plenary Symposia for the Congress as a whole, it was necessary to select as speakers individuals who were both outstanding in their fields and effective speakers. One member of each Symposium served as a coordinator. His task was to stimulate the interchange of information among the participants, and, hence, unify their separate papers.

There was a special problem that pertained to the Plenary Symposia. The audiences would be large--they turned out to number up to 2500--and special attention had to be paid to visual aids. Sheraton Hall, where the Plenary Symposia were held, is 170 feet long and 90 feet wide. If individuals at the rear of the hall were to see lantern slides clearly, the projection equipment would have to be excellent. The lantern slide projector actually used had special lenses and even 2x2 slides, projected for nearly 150 feet, formed crisp images on the screen. A very large screen was required (one was found in Chicago and rented for the Congress). It was the careful preparation of lantern slides by the participants themselves, however, that made this Congress such a success in the realm of the graphic arts.

Months before the Congress began test slides were prepared and projected in Sheraton Hall. On the basis of the information obtained, a memo was written "Suggestions for the Preparation of Lantern Slides." This was sent not only to the speaker in the Plenary Symposia but to speakers in all sessions of the Congress. Fortunately the vast majority of speakers followed the suggestions--to the everlasting thanks of the grateful audiences. For many speakers this meant considerable labor in preparing new slides. I am sure these speakers would be interested in a remark made by the director of the company which provided the projection equipment and the highly trained professional operators. According to him: in his long experience of projecting at large meetings and Congresses, ours had by far the most carefully prepared slides.

Information on how to prepare slides is difficult to obtain. For this reason the memo "Suggestions for the Preparation of Lantern Slides" is reprinted as an appendix of this volume. Possibly it will be of further use to the members of the Congress. It would be gratifying indeed if meetings of biologists could be held without the common complaint "How can that xxx expect me to read his lantern slides--I don't see how he can read them himself."

### Specialized Symposia

Early plans called for a total of thirty Specialized Symposia that would develop more fully some of the topics of the Plenary Symposia as well as treat other topics.

Several hundred suggestions for Specialized Symposia were received from the Organizing Committee, biological societies, and individuals. Thirty were chosen on the basis of their probable importance for the members of the Congress and likelihood of finding participants (some excellent topics had to be excluded simply because participants could not be found). Furthermore, the topics were chosen so that all the major areas of animal biology were represented. A specialist could, therefore, be sure of finding something of specific interest to him as well as a greater variety of symposia in cognate areas. One of these symposia was cancelled before the Congress began, at the request of its Organizer.

Once the topics and Organizers had been chosen by the Program Chairman, the details of organization were left to the Organizers, the Organizer selecting the other participants. To each of the participants thus chosen the Program Chairman sent a formal invitation to take part in the program of the Congress. This invitation was more than a courteous gesture; it frequently helped the member obtain travel assistance from his university or government. The participant was sent the most recent Program Report and his name was added to the list to receive all subsequent reports.

Early estimates indicated that we had funds to print two volumes of about 500 pages each of papers given in the Specialized Symposia. This meant about 30 printed pages for each symposium (or about 60 in case of the symposia that required two sessions). Each Organizer was given the responsibility of parceling out the allotment for his symposium to the participants. Most participants had 6-8 pages for their abstract.

The publishing of the abstracts of the Specialized Symposia was a large operation, the final total of papers being 181. Plans called for the abstracts to be published before the Congress and distributed to the Members in Washington. Luckily 177 abstracts arrived in time to be published in the Proceedings. Two came later and were published in the appendix of the Program. Two were never received, and in the case of one, the individual concerned was unable to attend the Congress.

The scheduling of matters pertaining to the abstracts for the Specialized Symposia went as follows. During the first week in January 1963, each symposium Organizer was sent all of the material for each of the participants in the symposium. Included were: instruction sheets "Preparation of Abstracts," special paper on which

the abstracts were to be typed, and Program Cards. The Organizer was asked to mail these materials, together with his own instructions, to each of the participants in his symposium. The abstracts were to be returned to the Organizer by April 15th. The Organizer was to complete any editing that he wished to do and to send by May 1st the abstracts to the Program Chairman, who in turn would prepare them for publication in the Proceedings. The abstracts had to start going to the printer by May 15th, if the volumes were to be in Washington in early August, in time for the Congress.

When these materials were sent to the Organizer, the Program Chairman also sent to every participant known to him a memo describing the over-all procedure. This was intended as a check: the participant would be expecting material from the Organizer; so, if he failed to receive it, he could write directly to the Organizer and request that it be sent. This intended check seems not to have worked as well as expected. In most cases the Organizer sent out the materials promptly. Some neglected to do so, but in these cases apparently no participant had written his Organizer to ask for the material.

The plans regarding the Program Cards worked in most cases but not frequently enough to be scored a success. Each participant was asked to fill in two Program Cards and to return them to the Program Chairman by March 1, 1963. The cards were simple: space for the participant's name, address, the title of his paper, and a place to indicate the size of any lantern slides or films. The reason for requesting two cards was as follows: one was to be used for an alphabetical file for the entire Program and the other was to be filed by symposium. The second group would be used in arranging for the necessary projection equipment for each session and also the preparation of the printed Program. Since the Program Cards were to be returned by March 1st, the information should have been available in ample time.

For this procedure to be fully useful, it had to work in nearly every case. It did not. About half of the participants returned two cards by March 1st. Others sent them to the Organizers, who in many cases kept them until May 1st, or later, and returned them together with the abstract. Some returned one card; others sent in none. In a surprising number of instances the title of the abstract as given in the Program Card differed from that given in the abstract (which was generally received later). Even the author's name and address varied more than within the bounds of expected typographical variation! It proved impractical, therefore, to use the Program Cards either for the early scheduling of projection equipment or for preparing the printed Program. In fact, nearly complete information about the projection equipment needed was not available until the end of June. The final printed Program was prepared from the abstracts themselves, which is probably the way it should have been planned anyhow.

These difficulties were of trivial importance so far as the Symposia were concerned. More than 98% of the papers were delivered as scheduled and 99% of the abstracts were printed in time to be distributed at the beginning of the Congress. The Organizers had reason to be pleased with their efforts and certainly the members found much of interest in the Specialized Symposia. In fact, the only serious complaint that came to my attention was that there were so many Specialized Symposia that one could not attend all of interest. Each Specialized Symposium lasted an afternoon, so 6 sessions were the maximum that one could attend--and many members wished to attend more. There is no obvious solution to this problem if an International Congress of Zoology is to be held once every five years and is to be restricted to one week. Longer congresses are probably undesirable--they might lead to intellectual and financial exhaustion! The value of holding international congresses more frequently should be discussed. If the frequency of congresses is to bear a direct relation to the rate of progress in zoology, clearly congresses should be held more frequently. In addition, one could suggest the desirability of an increase in the number of regional congresses of zoology or biology, possibly on a continental or subcontinental basis.

In nearly every instance the Organizer of the Specialized Symposium served also as the Chairman of the session. Victor Vanstraelen, who served as Honorary Chairman of "Scientific Use of National Areas," was not listed in the printed Program. Another addition to this same symposium was Eugene Clark, who was a Discussant. In "The Evolution of Endocrine Systems" Gardner Lynn replaced M. S. Mitskevich as a Discussant.

Plans for publishing some of the Specialized Symposia in more complete form have come to my attention.

1. The symposium "Simian Malaria" was published in full in the *Journal of Parasitology* 49: 865-919 (1963).
2. Blair's and Walker's papers from "Evolution at the Population and Interpopulational Levels" are scheduled for the *Quarterly Review of Biology*.
3. "Recent Advances in Neuroanatomy" has been published in *American Zoologist* 4:4-96 (1964).
4. "Principles and Problems of Functional Morphology" will probably be published in the Proceedings of the Netherlands Academy of Science.
5. Mead's, Bertelsen's and Cohen's papers from "The Biology of Abyssal Animals" are scheduled for publication in *Deep Sea Research*.

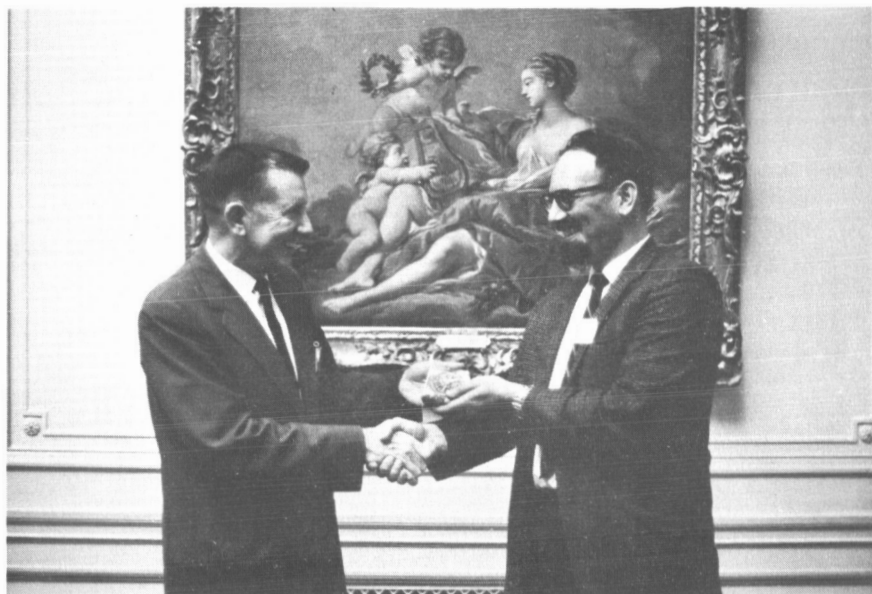


Figure 8. F. S. Barkalow (U.S.A.) and R. G. Van Gelder (U.S.A.)



Figure 9. Betty Moore (U.S.A.), T. M. Rizki (U.S.A.), and Sally Hughes Schrader (U.S.A.)

## Science and Man Symposia

The Science and Man Symposia were planned as devices for bringing some of man's problems, on which biologists have much to say, into the public forum. Unquestionably we are entering a period of increased realization that some of the man-nature interrelations demand hard thinking and hard actions. Biologists must, inevitably, participate actively in both the discussions and the solutions of the problems.

These symposia were planned not only for the Members of the Congress but also for the general public. For this reason it was thought desirable that they be held in the evening and, considering the anticipated size of the audience, in the largest auditorium available to us--Sheraton Hall.

Originally five symposia were planned:

1. The Protection of Vanishing Species.
2. Population Growth in Man and its Consequences.
3. Man's Ability to Control His Biological Destiny.
4. Nature, Man and Pesticides.
5. A Summing up: Our Plundered Planet.

Numbers 3 and 5 could not be organized and were cancelled shortly before the start of the Congress: 5 because of illness of the Organizer and 3 because of a general reluctance on the part of the individuals asked to participate. The subject was regarded as "too hot to handle." This outcome was, naturally, most disappointing to the Organizer. It was also disappointing to many Members of the Congress who expressed to me their great interest in the topic and regret that the symposium could not be held. Undoubtedly this topic will be discussed elsewhere and biologists will surely be irresponsible if they do not contribute their professional point of view.

The three remaining symposia did form a reasonably integrated whole and they contributed greatly to the success of the Program.

The following changes in the Science and Man Symposia were made after the Program had been printed: The Chairman of the Symposium "The Protection of Vanishing Species" was J. Baer, replacing Ira N. Gabrielson, who was ill at the time. So many changes were made in speakers and their titles in this symposium that it is best to give the revised schedule in its entirety.



Extinct, Rare and Endangered American Freshwater Fishes. Robert Rush Miller (Museum of Zoology, University of Michigan, Ann Arbor, Michigan).

Threatened Species of Mammals in North America. Ian McTaggart Cowan (Department of Zoology, University of British Columbia, Vancouver 8, B. C.).

Threatened Birds of the New World. S. Dillon Ripley (The International Council for Bird Protection, Yale University, New Haven, Conn.).

Vanishing Birds of the Old World. J. Dorst (Muséum National d'Histoire Naturelle, 55 Rue du Buffon, Paris V).

Vanishing Species of Australasia. Robert Carrick (Division of Wildlife Research, C.S.I.R.O., Canberra, Australia).

Rare and Threatened Mammals of Africa. Thane A. Riney (National Museum, Southern Rhodesia).

Vanishing Mammals of Asia. Harold J. Coolidge (International Union for the Conservation of Nature and Pacific Science Board, National Academy of Sciences. Washington, D.C.).

#### A further addition:

Gerard Piel gave the lecture "The Living Generations" in the Symposium "Population Growth in Man and its Consequences."

#### Contributed Papers

With respect to the number of Members involved, the Contributed Papers Sessions were the largest part of the scientific program. Approximately 500 pages, divided among 36 sessions, were listed in the printed Program. All of the sessions were held during the afternoons and they lasted a maximum of four hours. Fifteen minutes were allowed for each paper; thus a total of 16 papers could be scheduled for each session. An attempt was made, however, to have a 15 minute break near the middle of the session, which would result in a 15 paper session. The precise time for the break was staggered from session to session to prevent overtaxing the refreshment facilities.

The Chairmen of the Contributed Papers Sessions were admonished to adhere strictly to the schedule for their session and, except for a few chairmen who were reluctant to down a speaker when his time

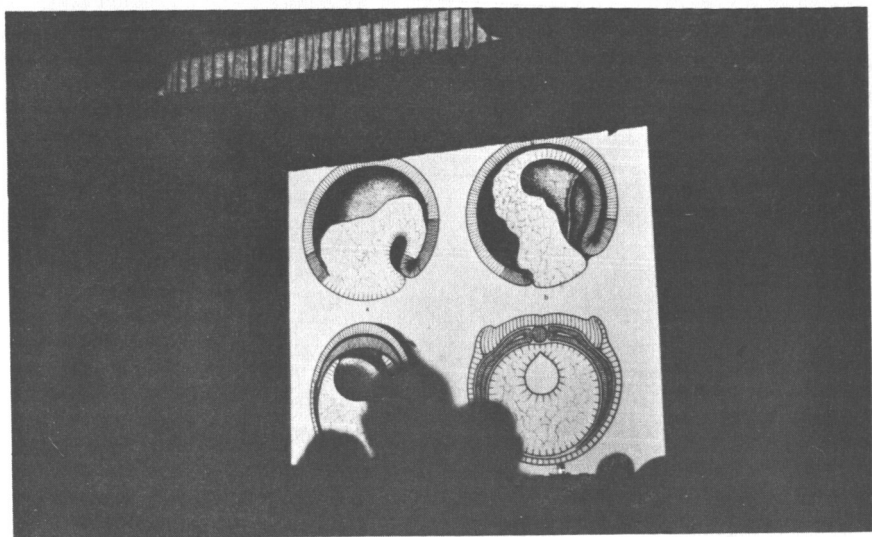


Figure 10. Plenary Symposium.



Figure 11. J. A. Keast (Canada), Sally Marshall (U.S.A.), J.J.T. Evans (Australia), and Mary Henderson (U.S.A.).

expired, this was done. Wherever possible, related sessions were in nearby rooms. In addition, an attempt was made to have the sessions devoted to experimental biology in the Sheraton and to non-experimental biology in the Shoreham. It was not always possible to make these arrangements since other factors, such as the number of rooms, and their capacities, had to be considered. (The Specialized Symposia were also scheduled with these points in mind.) The rationale was, of course, that a Member might wish to listen to papers in different sessions. If times were strictly adhered to, and if the sessions were close to one another, he could then plan his afternoon to attend a maximum number of papers of interest to him even if they were in different rooms. Of course the problem would have been made simpler if all of the rooms used for the sessions had been in the same building. Since that was not possible the next best thing was to group the session in some manner. The experimental vs non-experimental grouping seems to have worked relatively well though obviously it could not take care of the unique interests of all members--some were forced to walk up or down that long hill between the Shoreham and Sheraton.

The number of Contributed Papers listed in the Program was 499. Eleven were added subsequently. The distribution of the 510 papers is given in the accompanying table.

Category		Number of Sessions	Number of Papers
1	Invertebrate Zoology	6	86
2	Marine Zoology	2	23
3	Parasitology	2	32
4	Vertebrate Zoology	1	15
5	Paleontology	1	8
6	Systematics	1	15
7	Zoogeography	1	15
8	Behavior	2	26
9	Ecology	3	44
10	Physiology	5	70
11	Endocrinology	3	44
12	Evolution	2	30
13	Genetics	1	17
14	Embryology	3	45
15	Cell Biology	2	32
16	General	<u>1</u>	<u>8</u>
		36	510

The procedure for arranging the Contributed Papers Sessions was as follows. The Second Circular (mailed in May 1962) contained this notice: "Sessions for contributed papers will be arranged

according to major subject. The third circular of the Congress,... will contain the information about contributed papers. Even now, however, it will aid our plans if you would advise us if you wish to present a paper. (A tentative title should be given.)"

By October 15, 1962, a total of 100 individuals had sent in tentative titles for Contributed Papers. When classified it appeared that Invertebrate Zoology, Physiology, and Cell Biology would be the most popular subjects; Embryology, Evolution, Vertebrate Zoology, Behavior, and Ecology would occupy intermediate positions; and Genetics, Zoogeography, Systematics, and Paleontology would attract comparatively few speakers. (The seeming lack of interest in Genetics was correlated with the fact that the XI International Congress of Genetics was to take place in The Hague in early September, 1963.) These preliminary estimates were used to block out the sessions in a general way. They were found to approximate fairly closely the final results.

The Third Circular requested that individuals wishing to offer a Contributed Paper write to the Secretariat for the directions and special sheets of paper on which the abstract was to be typed. A deadline of January 15, 1963, was given for the receipt of the abstract. This deadline, more than seven months before the Congress, was set early primarily in order that the Travel Grants Committee might be able to refer to the abstracts.

An organizational problem prevented the January 15th deadline from being enforced. It should be recalled that the directions to be used for the abstracts were sent only to those requesting them (considering their form, it would have been too expensive to send them with each copy of the Third Circular, which went to 7500 individuals). This meant several weeks might elapse between the time a Member requested and received the forms. In order that there be ample time, it was essential that the Third Circular, containing the information about procedure, be mailed early in September of 1962. Unfortunately, the hoped-for printing schedule was not adhered to, and the Third Circular was not mailed until November 9th. At this late date airmail was used for all circulars sent out of the country. Nevertheless, a January 15th deadline became unrealistic and, in the directions sent to those wishing to submit an abstract, a new date of March 1, 1963, was set. The change was necessary, though unfortunate for two reasons: first, the Travel Grants Committee was forced to reach its decisions without being able to refer to all of the abstracts; second, the amount of work that had to be done on the Program between March 1st and June 1st greatly increased.

The items sent to each member who wished to offer a Contributed Paper were as follows:

1. Two pages of directions, "Preparation of Abstracts."

2. Two sheets of special paper on which the Abstract was to be typed.
3. The Memo "Suggestions for the Preparation of Lantern Slides."
4. Two Program Cards.

The Program Cards were the same as those used for the Specialized Symposia, and they were intended to serve the same purpose. There was a place on the Program Card for each Member to indicate the first and second choice for the session in which he wished to present his paper (the categories used were given in the table on page 46). In nearly every instance the paper was scheduled for the session designated as the first choice of the Member. This procedure undoubtedly resulted in a better classification of papers than if I had made the decisions--it also made the task much easier for me.

The Abstracts were first sent to the Congress office in Washington where they were checked against registration information. Then they were sent to me in New York, the majority arriving by April 15th, but a few continued to drift in until the time of the Congress. During the first part of May the abstracts were arranged according to session.

On June 20th, three memos were sent to every Member who had submitted an Abstract. One memo indicated the afternoon when the paper was scheduled, the information (taken from the Program Card) that we had regarding the size of his lantern slides and films, and directions of how and where to register when he arrived in Washington. A second memo contained information on how to obtain reprints of the Abstracts. A third memo gave information on how to reach the Congress hotels from Washington's airports, railroad terminal, and bus terminal. (The second and third memos were also sent to Participants in the Plenary Symposia, Specialized Symposia, and Science and Man Symposia.)

By far the greatest problem associated with the Contributed Papers Sessions was the high rate of late withdrawals. This was in marked contrast to the experience with the symposia. As has already been noted, more than 500 abstracts were received. A few were withdrawn early, and by the time that the Program went to press in early June, the total stood at 499. Between that time and the beginning of the Congress 67 papers were withdrawn. During the Congress 11 new papers were added to the program. The final "official" total was, therefore, 443 Contributed Papers. This, however, is not the actual total. Some individuals who were scheduled to speak failed to do so but never notified the Program Chairman. The exact number in this category is not known. The approximate number is 28--based on those who were scheduled to speak but who did not register at the Congress.

Thus the sum of those who formally withdrew after the Program had gone to press, or who failed to notify us that they did not intend to participate, was about 95--or one-fifth of the original total. As can be imagined, this made very serious problems in rearranging the program, and the solutions were not always satisfactory. This is what was done. In those cases where there were only a few withdrawals in a session, the remaining papers were not rescheduled. In a few of these vacated periods, late papers were substituted. In several of the sessions withdrawal approximated 50 per cent and the remaining papers were rescheduled. The rationale was based on the belief that the audience would probably be lost if there was an interval of more than 30 minutes between the papers. The revised schedule was published in the Congress newspaper, the Daily Phoenix.

In retrospect, I think it would have been wiser to adhere to the original schedule in the printed Program. Admittedly there would have been some long gaps, and probably the audience would have dwindled. However, it was clear that many Members of the Congress did not read the program changes that were listed in the Daily Phoenix. As a consequence they visited the various sessions on the basis of the printed Program and sometimes missed a paper that they wished to hear, and which they were unaware had been rescheduled. Of course, one could always say that, since the information was provided in the Daily Phoenix, they had only themselves to blame. Logical as that may be, the fact remains that the large number of withdrawals and subsequent changes in the schedules did inconvenience many Members. Better ways of dealing with the problem in future Congresses should be explored.

A related problem arose from numerous Members' requests, made at the time of the Congress, that their papers be shifted from one session to another. If the member making the request was an American the answer was always "no" unless the Member simply could not be at the Congress (changed travel plans) at the scheduled time. The answer should have been given without respect to geographical origin, but it was not. Some overseas Members asked that their papers be rescheduled for other reasons, such as a "more appropriate" session. If after being told that notices of changes in the program as published in the Daily Phoenix were overlooked by most Members of the Congress they still wished a change, their request was granted. These attempts to extend special courtesies to our overseas guests seemed, in general, to work to the disadvantage of all.

An effort was made to choose as chairmen of the Contributed Papers Sessions individuals familiar with the plans for the Congress. For this reason an attempt was made to persuade every Vice-President and member of the Organizing Committee of the Congress, who was not otherwise heavily occupied, to chair a session. In addition, distinguished scientists from overseas and the United States were asked to serve.

Most of the chairmen are listed in the printed Program but, in addition, these served: Alfred B. Chaet (Department of Biology, American University, Washington, D.C.) in Session 10A, Physiology; Rodolfo Ruibal (Division of Life Sciences, University of California, Riverside, California) in Session 9B, Ecology, instead of Frank A. Pitelka; T. Stanley Westoll (Department of Geology, University of Newcastle-upon-Tyne, England) in Session 5, Paleontology, instead of George G. Simpson; R. Van Gelder (American Museum of Natural History, New York) in Session 16, General Papers, instead of A. O. Tantawy.

Further changes from the printed Program are as follows. The paper "On the Origin and Relationships of the Arctic Ocean Abyssal Mollusk Fauna" by Arthur H. Clarke, Jr., originally scheduled as a Contributed Paper in Session 7, was given in the Specialized Symposium "The Biology of Abyssal Animals" (Abstract in Volume 1, page 202 of the Proceedings).

The following papers, not listed in the printed Program, were given.

1. Notes on Haemosporida (Sporozoa-Protozoa) in Pakistan. Faiyaz A. Lari (Malaria Institute of Pakistan, Dacca, East Pakistan). In Session 3A. Abstract in the Appendix of this volume.
2. Wallacea and Insular Fauna of Millipedes. Yu-Hsi Moltze Wang. In Session 7. Omitted from the Program in error. Abstract in Volume 1 on page 211 of the Proceedings.
3. Les Cestodes du Genre Echinococcus. Jacques Achille Euzeby (Ecole Vétérinaire de Lyon, France). In Session 3B. Abstract in the Appendix of this volume.
4. Contribution a la Physiologie du Poisson Dipneuste Protopterus. R. Godet (Faculté de Sciences, Université de Dakar, Senegal). In Session 10C. Originally listed only as a Demonstration. Abstract in Volume 1 on page 276 of the Proceedings.
5. A study of the Mucus-Secreting Gland in Octopus vulgaris. Joseph F. Gennaro, Jr. and Andrew E. Lorincz (College of Medicine, University of Florida, Gainesville, Florida). In Session 1F.
6. The Cytology of the Endostyle of Oikopleura dioica. Ragnar Olsson (Zoological Institute, University of Stockholm, Sweden). In Session 1F.

7. Mucus Secretion from the Proboscis of an Enteropneust, Harrimania kupfferi. Arne Nørrevang (Institute of Comparative Anatomy, University of Copenhagen, Denmark). In Session 1F.
8. The Inheritance of Ear Wax in Chinese of Hong Kong. S. T. Chang (Biology Department, Chung Chi College, Hong Kong). In Session 13. Abstract in the Appendix of this volume.
9. Mucous Secretion from the Trunk of Balanoglossus gigas. P. Sawaya (Estrade da Boiadas 100J, São Paulo, Brasil). In Session 1F.
10. Development, Trans-Atlantic Distribution and Speciation in the Octopod Bartholomewia arctica "Complex." Herman Kumpf (Institute of Marine Science, University of Miami, Miami, Florida). In Session 1E.

The paper in Session 1E by Malcolm R. Clark, listed as "Withdrawn" in the printed Program, was given (Abstract Volume 1 page 67).

#### Congress Publications

When the Congress began, six volumes totalling about 1700 pages were distributed to the Members. Five other volumes with approximately the same total number of pages were planned as post-Congress publications.

The six volumes distributed at the time of the Congress were as follows: Volumes 1 and 2 of the Proceedings contained one-page Abstracts of Contributed Papers, Demonstrations, and Papers Presented by Title. Volumes 3 and 4 of the Proceedings contained digests (4-8 pages) of the papers given in the Specialized Symposia. A fifth volume, the Program, was devoted largely to listing the talks in the scientific sessions, but it also included lists of committees and donors, various announcements, practical information, and, of more lasting value, Abstracts that arrived too late to be included in volumes 1-4 of the Proceedings. The sixth volume was "A Guide Book to Washington."

The post-Congress publications are as follows. You are now reading volume 5 of the Proceedings. Volume 6 will contain nearly all of the full papers of the Plenary Symposia. It will appear in 1965. The Science and Man Symposia have been published as volumes 7, 8, and 9 of the Proceedings.



All of these volumes, except 6, were printed by photo-offset from typewritten copy. The decision to print in this manner was made for three reasons: cost, speed, and efficiency. The first four volumes of the Proceedings cost about \$1.25 per volume in editions of 3000. Alternatively, if they had been produced by the usual method from printer's type, the cost would have been about \$2.75 for each volume. Whereas a volume printed in the usual manner generally requires 8-12 months, the first six Congress publications were produced in far less time. Material began to go to the printer on May 21st, and all was in his hands by July 1st. The six volumes were delivered in Washington August 7. They were printed by the University Printing Centers in New York, whose staff served the Congress with remarkable skill and efficiency. The cover design for all the Congress volumes (except volume 6 of the Proceedings) is the work of Laurence Lustig--and his gift to us.

In the case of the four volumes of the Proceedings, each author had the responsibility of submitting copy exactly as it should appear on the printed page. There was, therefore, neither need nor opportunity for editing or proof reading--and hence a tremendous saving in labor and time (and, of course, expense).

Not all Members submitted Abstracts that were neat enough to be used as photographic copy. Approximately 5 per cent had to be retyped in the Congress office in Washington. Some of the Abstracts that were printed in the form submitted by the authors left something to be desired. And, of course, there are always variations due to differences in the kind of typewriter employed and the skill of the typist.

The Program and the Guide Book to Washington were handled in a different manner. In these cases the printer retyped the material with an electric typewriter having a carbon ribbon. These two volumes give a better indication of what can be expected from this method of producing books.

### The Congress Medal

The striking design for the Congress emblem, inspired by Gerard Piel and rendered by Rudolf Freund (Peabody Museum, Yale University), was used for the Congress Medal.

Mrs. Karen Worth was the sculptor who prepared the model from Mr. Freund's design. Mrs. Worth, a native of Philadelphia, received her training in the United States and France. Her works were first exhibited when she was only eleven years old. Since then she has won numerous prizes, and many private collections throughout the world contain things that she has done. She by no means restricts



Figure 12. R. C. Bigalke (Union of South Africa) and L. W. Swift (U.S.A.)

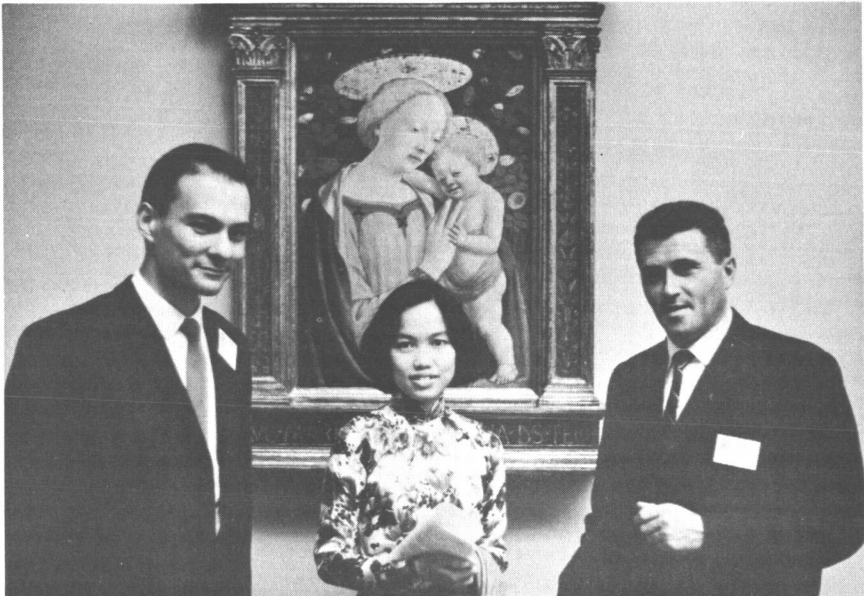


Figure 13. P. Jolicoeur (Canada), Bui Thi Lang (Vietnam), and E. Magnin (France).

her art to small objects such as medals: the large bar-relief in the Phoenix (!) Mutual Life Insurance Company (Coliseum Towers Building, Columbus Circle, New York) is hers. A photograph of her model for the medal is reproduced as the frontispiece of this volume.

The Medallic Art Company of New York prepared the three-inch bronze medals from the model.

The Medals were distributed to the Members of the Congress at the President's Reception in the National Gallery of Art.

### The Evening Receptions

Social events, which could seriously deplete the Congress's funds, were held to a minimum. It was thought more appropriate to use the greater part of the Congress funds in helping overseas Members come to the Congress rather than to wine and dine them once they were here. The official social events for all Members were, therefore, restricted to three evening receptions.

The first of these receptions was held on the evening of Tuesday, August 20, at the National Zoological Park, immediately following the formal opening of the Congress by President Romer. The Members of the Congress were the guests of the Smithsonian Institution, which supervises the National Zoological Park. Theodore H. Reed, the Director of the National Zoological Park, and J. Lear Grimmer, the Associate Director, were able to provide a stunning evening for the Members. Their performance was all the more remarkable in view of the downpour that was occurring at the time. Earlier in the day, when the sky looked none too good, the Weather Bureau of National Airport was asked for advice as to whether we should plan on having the refreshments out of doors or in the Animal Houses. In mid afternoon, at the time of no return, the prediction was for no rain and the tables were set up out of doors. They were hurriedly taken into the Animal Houses once the rain started.

The deluge probably enhanced the delights of the evening. After all there is a certain charm, especially for zoologists, in drinking champagne in close association with a hippopotamus. One has the best of both worlds. A word should be mentioned about the pachyderms in general. They knew, quite clearly, that something special was afoot and that they had real responsibilities for seeing that all went well. In spite of the fact that it was long after their bed time, they were polite, friendly, and generous hosts. The only slightly disturbing note was the big rhinoceros. About 11 P.M. she (he?), simply exhausted by playing the perfect

host, collapsed into the corner and crossed her (his?) legs and settled down for a well-deserved rest.

On this occasion the National Zoological Park opened the Elephant House, Bird House, Cat House and the Reptile House. The Park is undergoing a complete renovation and the new buildings are splendid indeed. Total attendance at this reception was 2109.

The Smithsonian Institution also was our host for the second reception--on Wednesday, August 21st, at its Museum of Natural History. The Museum is also undergoing a complete renovation, and it was enjoyable to wander through its fine new halls. A. C. Smith, then Assistant Secretary of the Smithsonian Institution, and Horton H. Hobbs, Jr., Head Curator, Department of Zoology, were those ultimately responsible for making the reception so pleasant for the 3,256 Members and their guests who attended.

The President's Reception was held the evening of Friday, August 23rd, at the National Gallery of Art. A total of 2227 Members of the Congress and their guests attended. Most passed through the receiving line to be greeted by President and Mrs. Romer and to receive the Congress Medal. All of the galleries on the ground floor, with their collections of Oriental art, bronzes, and American paintings, and on the main floor, with their Western paintings and sculpture, were open to the Members of the Congress. It seems to have been a most pleasant evening for the Members and, subsequently, Mr. Ernest R. Feidler, the Administrator of the National Gallery of Art, wrote "May I add that of the many special groups who have come to the Gallery on similar occasions, none has been more appreciative than the members of your XVI International Congress."

Many of the photographs in this volume were taken at the President's Reception at the National Gallery of Art.

### The Music Program

On Sunday evening, August 15th, the Mozart Trio gave a recital in the Cotillion Room. The Trio consisted of Lee Meredith, soprano, Joseph Collins, baritone, and John Yard, baritone. Alfred Neuman was at the piano. They performed 16 works by Mozart to a responsive audience, who in a real sense were the guests of Gerard Piel--the concert was one of his donations to the Congress.

Every afternoon from 4 to 6, except Saturday, there were two programs of recorded music: "Chamber Music" arranged by David MacGregor and "Folk Music of the New World" arranged by Sally Marshall (who also prepared informative program notes). The records

for the folk music program were loaned to the Congress by Moe Asch of Folkway Records.

The two programs of recorded music were offered in the belief that they would prove enjoyable to the wives and children of Members and for those Members who might feel the need of a respite from the scientific sessions late in the afternoon. Attendance at the sessions was small--generally less than a dozen at any one time. One should probably conclude that this part of the program was unnecessary. Those who did attend the programs, however, seemed to be enjoying themselves very much.

\* \* \* \* \*

Acknowledgments. Many individuals assisted with the program of the Congress in numerous ways, but two deserve my very special thanks. Miss Inger Hermann, of the staff of the National Research Council, gave freely of her advice and time during the early stages when the plans were being formulated and developed. Mrs. Sally Marshall was fully involved during the late spring and summer of 1963 in arranging the final program and seeing the Congress publications through production. And more general thanks to all those responsible for appointing me as Program Chairman. Biology has entered a period of tremendous flux and achievement. It was exciting to have the opportunity of arranging a program for a congress at this particular moment in history.

REPORT BY THE  
INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE\*

We, the International Commission on Zoological Nomenclature, assembled at Washington in August 1963, have the honour to submit to the XVith Congress of Zoology the following report.

2. Attendance of Commissioners at the present Session.- The following (19) members of the Commission have been in attendance at the present session: Alvarado (Spain), Vice-President do Amaral (Brazil), Binder (Switzerland), President Bradley (U.S.A.), Brinck (Sweden), Acting Secretary China (at Large), Evans (U.K.), Holthuis (Netherlands), Key (Australia), Kühnelt (Austria), Lemche (Denmark), Mayr (at Large), Miller (U.S.A.), Munroe (Canada), Riley (U.K.), Stoll (U.S.A.), Tortonese (Italy), Uchida (Japan), Vokes (U.S.A.).

Nine (9) Commissioners were unable to attend the present Session: Bonnet, Borchsenius, Boschma, Hemming, Hering, Jaczewski, Mertens, Obruchev, Prantl.

3. Alternate Commissioners.- Alternate Commissioners were elected to represent absent Commissioners as follows:

Mr. Sabrosky as alternate for Dr. Borchsenius  
Dr. Brongersma as alternate for Dr. Boschma  
Mr. Whalley as alternate for Mr. Hemming  
Dr. Klauswitz as alternate for Dr. Hering  
Dr. Szarski as alternate for Dr. Jaczewski  
Dr. Kraus as alternate for Dr. Mertens  
Dr. Svetovidov as alternate for Dr. Obruchev

3. Vacation of one-third of the seats on the International Commission on the last day of the XVith International Congress.- Under the Bylaws of the Commission one-third of the seats on the Commission automatically fall vacant at the close of each Congress. Under this rule the seats to be vacated are occupied by the following ten (10) Commissioners: do Amaral, Bradley, Vokes, Stoll, Holthuis, Key, Miller, Prantl, Kühnelt, Mayr.

5. Nominations for the filling of seats on the International Commission.- After careful consideration the Commission has nominated the following for election or re-election to the Commission: do Amaral, Vokes, Stoll, Holthuis, Miller, Mayr, Ride, Kraus, Hubbs, Sabrosky, Forest, Simpson.

\* See also pages 22-23 of the Secretary-General's report.

Report on the Work Carried Out by the International  
Commission on Zoological Nomenclature in the Five  
Year Period 1958-1963.

By W.E. CHINA (Acting Secretary, International Commission  
on Zoological Nomenclature)

6. The period in question begins in London with the Closing Address of Sir Gavin de Beer, President of the XVth International Congress of Zoology, on July 23rd, 1958. The President pointed out that an Editorial Committee had been set up to prepare for publication the Text of the International Code of Zoological Nomenclature which had been prepared and agreed upon by the Colloquium on Zoological Nomenclature. The President also informed the Plenary Session that the International Commission on Zoological Nomenclature had recommended that its work in future should be conducted on the basis of a centralised office with a permanent salaried secretary and staff without prejudice to its location or the nationality of its staff; that immediate action be taken to reduce the bulk and cost of the publications and that steps be taken for the establishment of an International Association for Zoological Nomenclature. The Commission also recommended that its own By-laws be re-examined with a view to amending them in the light of existing conditions and a By-laws Committee was set up to carry out this task.

All these recommendations were approved by Congress during the Final Plenary Session.

7. As you all know, the work of the Editorial Committee leading up to the publication of the Code in November, 1961, is ably recorded by Commissioner Stoll, Chairman of the Committee, in his Introduction to the Code. The Commission must always be grateful for the painstaking efforts of the Editorial Committee and indeed to all those who took an active part in work leading to the publication of the Code. Over 4,000 copies have now been sold and translations have been made in Japan, Czechoslovakia, Germany, Poland, Spain and Mexico.

8. The Draft Constitution prepared by the By-Laws Committee, Dr. K. H. L. Key, Prof. H. Boschma and Prof. Ernst Mayr (Chairman) was submitted to the Commission on August 26, 1959, and was duly published in the Bulletin Vol. 19, pp. 358-364 followed by an Addendum containing suggested additions and amendments by the President of the Commission, Prof. J. Chester Bradley, supported by Dr. A. do Amaral, Vice-President and the Hon. Secretary, Mr. N. D. Riley.

A working draft of the proposed By-laws based on a combination of the original draft and the President's suggested amendments (Doc. A) has been prepared and circulated to those present to assist in the discussion which will follow later.

9. Mr. R. V. Melville, who had been appointed Assistant Secretary of the Commission and Assistant Manager of the Trust on the retirement of Mr. Hemming, played a leading part in the affairs of the Commission after the Congress. As Secretary of the Editorial Committee, he was largely responsible for advising the Committee on the numerous decisions of the Colloquium and as Assistant Secretary of the Commission under Mr. Secretary N. D. Riley he was responsible for the routine management of the Secretariat involving the preparation of Applications for publication in the Bulletin, the organization of voting by the Commissioners and the promulgation of their Opinions. In December, 1951, he returned to his palaeontological work on the Geological survey of the U.K. His place was taken by the present Acting Secretary, then Keeper of Entomology at the British Museum (Nat. Hist.) in succession to Mr. Riley. Melville continued to cooperate in editing the Bulletin of Zoological Nomenclature and especially in seeing the New Code through the press. Eventually he left the Geological Survey in 1960 and went to Paris as Scientific Attaché at the British Embassy.

10. In 1959, the Trustees of the British Museum (Natural History) allocated accommodation in the Museum for the Commission's Office. Not only was this a financial gain more than equivalent to the 250 pounds a year rent previously paid by the Trust for modest accommodation in London, but the unique library facilities and wide range of specialist advice available, were of the utmost value to the Secretariat. Great saving in time and correspondence resulted and altogether the generosity of the Museum Trustees was equivalent to an estimated annual subvention of \$2,000.

11. Steps were taken under Messrs Riley and Melville to implement the recommendation by the XVth Congress that the bulk and sale price of the Bulletin should be reduced. From 1959 onwards the separate publication of the Opinions and Declarations series ceased and it was incorporated into the Bulletin, the annual price of which has been reduced from 88 pounds in 1958 for Applications, Comments, Opinions, Declarations, Directions and Matter for Discussion at the XVth Congress to 18 pounds in 1962 for similar coverage. Naturally if the annual cost is to be fixed then the number of Applications, Comments, Opinions, etc. published each year must be kept within bounds. In 1962, starting with vol. 19, part 5, the size of each part of the Bulletin was increased from 64 pages to 80 pages without increasing the price. It is hoped by more economies still further to increase the number of pages published each year.

12. In view of the great changes that have been made in the style of the Commission's publications it has been felt that the formation of an International Association for Zoological Nomenclature recommended at the XVth Congress in 1958 was now unnecessary. Lord Hurcomb, Chairman of the International Trust, had warned the Commission in July, 1958 (Bull. Zool. Nomencl. 15 pt. 40, Document B. p. xxxiii) of the danger of disrupting the present organisation



and Sir Gavin de Beer, President of the XVth Congress, had pointed out to the Commission, financial difficulties involved in such a scheme.

The Executive Committee of the Commission therefore decided to go ahead with the existing system, where the Commission is financed by the International Trust, which has proved so successful. I think that the Commission will agree that the continuation of the present arrangement should be recommended to Congress for approval.

### 13. Personnel

(1) Losses through death. It is with great regret that we have to record that since its Session in London in July 1958, the Commission has suffered the loss through death of:

(a) their Honorary Life President, Dr. Karl Jordan, who died at the great age of 97 on January 12th, 1959. An obituary was published in the Bulletin of Zoological Nomenclature (17: 259-266);

(b) Commissioner Prof. F. S. Bodenheimer (Israel) who died most unexpectedly in London on October 4th, 1959;

(c) Commissioner Prof. Béla Hankó (Hungary) who also died suddenly in Toronto, on November 16th, 1959;

(d) Commissioner Dr. Angel Cabrera (Argentina) who died at La Plata on July 7th, 1960, aged 81;

#### (2) Losses through resignation.

During the period under review the Commission suffered the loss of two Commissioners by resignation: On June 9th, 1961, Commissioner Prof. J. R. Dymond (Canada) tendered his resignation which was accepted. Prof. Dymond had for a long time intimated his intention of doing so but had been persuaded to stay on beyond his time.

On 23rd October, 1962, Commissioner Dr. Max Poll (Belgium) tendered his resignation which was accepted with regret by the Executive Committee.

Prof. J. Chester Bradley has also submitted his resignation both from the Presidency and as Commissioner to take effect from the end of this Congress.

It is convenient to report here the case of Commissioner Dr. Ferdinand Prantl (Czechoslovakia). For some time the Secretariat received no communication from him and in 1962 it learnt that Dr. Prantl had been imprisoned. He was placed on extended leave of

absence while steps were taken to determine whether or not his imprisonment was due to political reasons since, according to the Constitution, such imprisonment did not warrant expulsion from the Commission. All attempts to find out the reason for Prantl's imprisonment having failed it would be realistic if the Commission were to decide to replace him, since a Commissioner to be effective must be a persona grata with his own government.

(3) Elections to the Commission during the period 1958-1963. Elections of Commissioners during the period under review were:

(a) Dr. Dmitri Obruchev (Professor of Palaentology, Academy of Sciences, U.S.S.R.), 5 November, 1958;

(b) Dr. Tohru Uchida, Professor of Zoology, Hokkaido University, Sapporo, Japan), 24 March, 1959;

(c) Dr. G. O. Evans (British Museum (Nat. Hist.) London, Acarologist), 31st May, 1960 (to replace Commissioner Prof. P. C. Sylvester-Bradley who resigned);

(d) Prof. Dr. Raphael Alvarado (Museo Nacional de Ciencias Naturales, Madrid, Invertebrate Zoologist), to represent Spain (31 May, 1960);

(e) Dr. E. G. Munroe (Research Officer, Entomology Research Institute, Dept. of Agriculture, Ottawa), nominated by the National Research Council and the Royal Society of Canada to replace Commissioner Prof. Dymond (9 June, 1961);

(f) Dr. N. S. Borchsenius (Assistant Director, Institute of Zoology, Academy of Sciences, U.S.S.R. Leningrad, Coccidologist), nominated by the Zoological Institute, Academy of Sciences, U.S.S.R. 28 September, 1961;

(g) Prof. Dr. E. Binder (Natural History Museum, Geneva, Switzerland, malacologist), nominated by the Swiss Academy of Natural Sciences (21 May, 1962);

(h) Dr. W. E. China, C.B.E., Assistant Secretary to the Commission and formerly Keeper, Dept. of Entomology, British Museum (Nat. Hist.) London, (Hemipterist), elected Commissioner-at-large by the Executive Committee.

The position now is that there are 26 Commissioners representing 18 different countries with 2 Commissioners-at-large, Prof. Ernst Mayr and myself.

#### (4) Change of Secretaryship.

On 30 June, 1962, Mr. N. D. Riley C.B.E., Honorary Secretary of the Commission, expressed a wish to resign and Dr. W.E. China, Assistant Secretary, agreed to take his place as Acting Secretary until a new Honorary Secretary could be elected by the Commission at the present Congress.

#### (5) Retirement of Commissioners.

According to the Constitution, the senior third of all Commissioners are due to retire at the end of this Congress. These may offer themselves for re-election if they wish, and if the Commission agrees.

### 14. Publications

Since the last Congress, 110 Opinions, 2 Directions, 238 new applications from zoologists and 127 comments have been dealt with and published in the Bulletin of Zoological Nomenclature. In addition, 50 Opinions and 2 Declarations were published in the Opinions and Declarations series before that series was brought to a close. Although this is considerably less than in the preceding five years under Mr. Secretary Hemming's direction the cost to the subscriber has been correspondingly less. It has become obvious that there is a limit to the number of applications which can be published if the annual cost is not to be oppressive.

The Declarations which according to the Constitution must be reported to Congress are:

(a) No. 40, which was issued on 15th October 1958, declared that "Generic names having the termination '-ides.', '-ites,' or '-oides' are to be treated as being masculine in gender."

Although technically not issued until after the XVth Congress, Declaration 40 was reported to the Congress by Assistant Secretary, R. V. Melville, and was ultimately incorporated in the New Code in Article 30(a) (4) (ii) on page 33. It does not need the approval of the XVIth Congress.

(b) No. 41, which was issued on 15th October 1958, declared "Where in a work written in the Latin language a Latin word is used in such a way as to be capable of bearing the interpretation that it is there employed as a generic, specific or subspecific name duly formed in accordance with the provisions of the Regles, the word in question is to be so interpreted, save where such an interpretation is clearly excluded by the context."

This Declaration although actually issued after the XVth Congress was reported to that Congress by Mr. R. V. Melville,

Assistant Secretary. The Colloquium agreed that Declaration 41 should be incorporated into Article 6, Sect. 1 of Prof. J. Chester Bradley's draft English text of the revised Code. Article 6, Section 1 is equivalent to Chapter 4 in the New Code and Declaration 41 should have been incorporated in Article 11(b). This does not appear to have been done and the Commission must recommend to Congress that Declaration 41 should be approved or disapproved.

## INTERNATIONAL BIOLOGICAL PROGRAM

A symposium on the International Biological Program was held on the afternoon of Tuesday, August 27. Those participating were: Jean G. Baer (IUBS), F. W. G. Baker (ICSU), C. Birch (Australia), T. C. Byerly (USA), E. H. Graham (USA), T. Monod (France), K. Petrusewicz (Poland), and J. S. Weiner (U.K.).

A brief history of the IBP was recounted, citing the interest in such a program on the part of the International Union of Biological Sciences, the International Union of Biochemists, and the International Union of Physiological Sciences. In September, 1961, a planning committee for an International Biological Program was authorized by the International Council of Scientific Unions. Two meetings of the planning committee have been held, one at Morges, Switzerland, in May 1962, a second at Rome, Italy, in January 1963. National interest has been shown by several countries. In Britain the Royal Society has established a provisional committee on IBP; the Polish Academy of Sciences has organized a comparable group; and the U.S. National Academy of Sciences is in the process of establishing an ad hoc committee to give special attention to the development of the International Biological Program.

It was pointed out that, under the theme of "The Biological Basis of Productivity and Human Welfare," several small working groups have been outlining potential international research programs dealing with biological productivity in terrestrial, fresh water, and marine environments. Another group, concerned with the urgent need for international cooperation in the preservation of characteristic ecosystems for research purposes, has planned several field reviews between countries. The study of human adaptabilities to various environmental situations, as well as information and training needed to support the IBP, are the subjects of other working groups. There was discussion also of an additional group on biological resources, to consider the relation of proposed research results to practical affairs. It was pointed out that the exploratory discussions have had a strong ecological flavor, with stress on field biology as differentiated from laboratory research.

Because the nature of biological problems and life processes require such an effort to be significantly different from the International Geophysical year or other international programs in the physical sciences, the IBP is expected to extend over several years, the proposed period being 1965-1970. The symposium found general



Figure 14. L. Leloup (Belgium) and V. van Straelen (Belgium).



Figure 15. Excursion to the Chesapeake Biological Laboratory.

agreement on the need for emphasizing international biological activity and recognized that the demands upon the biological sciences throughout the world are greater today than ever before--in the whole order of conceptual thinking in biology, in the formulation of fundamental concepts and principles in the life sciences, in the scientific development of biological resources in both new and old nations, and in meeting the basic needs of the rapidly increasing numbers of people everywhere.

## REPORT ON THE SCIENCE THEATER

For the first time in the history of the International Zoological Congress, a Science Theater was included as an integral part of the Congress itself. It was hoped that the Science Theater would stimulate future Congresses to include a similar unit in their programs. Four hundred twenty-seven films were previewed for the Science Theater, sixty of which were selected for showing. Films shown included those brought directly by delegates, and those submitted by various governments, science foundations, and universities. Foreign films included eight from France, four from Australia, four from Germany, three from Japan, three from Canada, two from Great Britain, two from The Netherlands, one from the Union of Soviet Socialist Republics, one from India, one from Malaya, one from Congo Republic, one from Guatemala, and one from New Zealand.

The Science Theater consisted of five showings for teaching and research films. These sessions were held between 14:00-18:00. In addition to the afternoon sessions, two evening programs for the general public were presented. Also, there was a special session for young people. A film program was prepared for the Science Theater which listed a complete description of each film, including running time and hour of showing.

It is worthy to note that the evening programs were both exceptional. For the first evening presentation, the National Aeronautics and Space Administration presented, "The Manned Space Flight Program." For the second evening, Dr. H.B.D. Kettlewell of Oxford University introduced the film, "Breakthrough No. 7: Evolution at Work."

For the special session for young people, Dr. Roman Vishniac presented one film each from his trilogies, "The Pond" and "The Living Tide." These were truly magnificent productions. The second part of the special session was originally to be a series of short research films in bioscience, presented by Dr. Richard A. Boolootian. This latter presentation was cancelled; and instead, the National Aeronautics and Space Administration presented an outstanding program, "Biosatellites."

Attendance for all sessions of the Science Theater was good. Afternoon sessions averaged between 130-250 delegates each day.

The Congress is greatly indebted to all those who lent films for showing.

Richard A. Boolootian



## REPORT OF THE COMMITTEE ON PROJECTION

Early work of the committee, beginning in February 1962, was primarily concerned with the decision whether to use a commercial firm for projection apparatus and projectionists. This included initial contacts with Wilson Gill, Inc., visits with their representatives to the various rooms proposed for use in the two hotels, and submission of tentative cost estimates for consideration by the Executive Committee of the Congress. Once the decision to use these services had been made much of the later planning was done in conjunction with Mr. Morris Caldwell of Wilson Gill. Several more inspections of the meeting rooms made it possible to plan how each room should be set up with respect to location of screen, podium and chairs and to investigate such problems as locations of light switches, effectiveness of provisions for excluding outside light, etc. One such visit with Mr. Caldwell and Dr. John Moore was devoted to a study of optimal requirements for lantern slides to be used in these rooms and in the light of this study Dr. Moore drew up a detailed set of instructions which went out to all speakers (reprinted in the Appendix).

Investigation of the meeting rooms revealed that in all but two or three cases the light switches were located in places which would make it impossible for the projectionist to reach them. It thus became clear that someone would have to be on duty in each room for each session to control overhead lights. Once this necessity was realized it seemed logical to make these people responsible also for other general duties in the room to which they were assigned. In this way the duties of the Projection Committee were extended to include the provision of Room Stewards.

Until the spring of 1963 the committee had not actually been constituted. In April I appointed three of our graduate students, Mr. John P. Macnamara, Rev. Justin McCormick, and Mr. Joseph Gregorek to the committee and all further activities were carried out with their help. We enlisted both graduate and undergraduate students from Catholic University and our neighboring institution, Trinity College, by holding several meetings with appropriate groups at each school at which the nature of the Congress and the duties of our committee were explained. All students were asked to devote at least the equivalent of one full day to the committee's work. We got names, addresses, and phone numbers of all volunteers and alerted them to the fact that we would expect them to attend an organization meeting in early August to receive definitive assignments. Such a meeting was held on August 7.

During the spring and summer of 1963 the committee held several meetings to decide on the most efficient method for handling the collection of slides and films from the speakers and distribution of this material to the meeting rooms. We felt that the haphazard delivery of slides to the projectionist by individual speakers whenever they happened to arrive at their scheduled session should be avoided if at all possible. The system we arrived at was to request all speakers to deliver their slides to a central collecting point (East Room, Shoreham Hotel) at least one day before their papers were scheduled; here the slides were to be arranged in sequence according to the schedule of papers for each room, the slides for each session would then be delivered to the projectionist in the room before the session and would be returned to the East Room after the session from whence they could be picked up by the speaker.

The mechanics of this scheme were worked out as follows: 1) As soon as a schedule of papers was available we made up duplicate file cards for each paper, one white card and one either blue or yellow depending on which hotel the paper was to be given in. These cards gave speaker's name, date and name of paper, room, number of paper on the schedule and size of lantern slides or movies the speaker had designated for use. 2) All cards were filed alphabetically by speaker's name, the duplicate cards being kept together. 3) Paper cartons of uniform size were obtained to hold the slides, one carton for each session of the Congress. 4) A card (of appropriate color according to hotel) was prepared for each session listing in sequence the papers to be given at the session. Such a card was attached to the front of each carton. 5) Since Sally Marshall was extremely cooperative about keeping us abreast of program changes before, and even during the course of, the Congress, it was easy to keep this file and the session schedules up to date. 6) The day before the opening of the Congress we moved the material into the East Room, arranged the labeled cartons in order by days on tables at each side of the room, those for the Shoreham Hotel on one side and those for the Sheraton on the other, and were ready to receive slides.

Meanwhile the committee had worked out duty assignments for the 40 students who had volunteered for this project and had checked with all by phone to be sure they would be on hand. All had also been provided with mimeographed instruction sheets for both "Room Stewards" and those on duty in the "East Room." (See samples appended to this report.) Our schedule provided for the East Room to be manned from 8:00 A.M. to 7:00 P.M. August 20-27 and for a Room Steward to be on duty in each session room for each session.

The students on duty in the East Room received slides from speakers and pulled the appropriate cards from our file. Receipt of the slides was recorded on the white card and this was then transferred to a "Received File." The slides were checked with the speaker to see that they were in proper order and properly

marked. (Materials were available for marking or binding slides.) The duplicate colored file card was then attached to the slides and the slides were placed in the proper carton and in proper sequence for the session in which they were to be used. An extra check was provided by marking receipt of the slides also on the list attached to the carton in which they were placed. Following the close of any session slides were returned to speakers who were asked to sign for them on the white file card which was then transferred to a "Returned File."

Room Stewards were directed to come to the East Room a half hour before their sessions to pick up slides. Here each steward was given the carton of slides for his room and also a card with directions or a diagram for locating the light switches in his room, any pertinent information on control of drapes or curtains, and the telephone extensions of the hotel maintenance man and "sound man." He was thus equipped to cope with any difficulties with either the room arrangements or the public address system. His other duties are outlined in the attached direction sheet.

Because of the fact that a number of rooms were in use in both hotels we found it expedient to have, in addition to the Room Stewards, one of the committee members to act as a general supervisor on duty in each hotel for each session. He went with the group of Room Stewards to their assigned rooms and checked that the projectionist was on hand and that there were no other problems before the session began. During the sessions he circulated about from room to room to aid in any way needed.

More or less incidental matters handled by this committee included arrangements made with Wilson Gill, Inc., for special public address system needs such as neck microphones, extra table microphones for tape recording certain sessions, as well as provision of ushers for one evening meeting, and provision of helpers for some of the record concerts.

The only monetary outlay required for this committee was for cardboard cartons, file cards, and other small items of office supplies and this totaled less than \$50.00. In addition, registration fees were waived for the students who helped with the project. The 18 graduate students were given all benefits of registration including the Proceedings; the 22 undergraduates received badges which permitted them to attend all sessions but were not given the Program or Proceedings.

In retrospect the Committee is well satisfied with the results of its efforts. The system for collection and care of slides may seem somewhat elaborate but it actually worked quite smoothly in practice. Once the labor of typing up file cards had been done, well ahead of the Congress, most of the rest of the job went along almost automatically. A system of this kind seems justifiable only

for a large meeting with numerous simultaneous sessions but here it does appear highly useful. The only modification we feel would be desirable would be a provision for encouraging speakers to get their slides back from each Room Steward at the end of each session rather than requiring them to return to our central collecting point. This could easily be done and would avoid having slides forgotten. We had to return about 20 sets of slides by mail.

Acknowledgment should be made in this report of the efficient and highly cooperative service given by Wilson Gill, Inc., and especially by their representative Mr. Morris Caldwell. They responded quickly and cheerfully to emergency changes and showed a genuine interest in contributing to the success of the Congress. The work of the committee was, of course, significantly dependent upon the many students who volunteered their aid. All were anxious to serve in whatever capacity desired and their interest was clearly evidenced by the fact that many of them appeared at the East Room before sessions on days when they were not assigned to duty, simply to be on hand in case any emergency arose. At a recent informal gathering most of these students, for their part, took the opportunity to express their gratitude for the opportunity to be a part of the Congress and to attend the Symposia and other sessions.

W. G. Lynn

## REPORT OF THE EXCURSIONS COMMITTEE

It was great fun. An even dozen of the 13 proposed excursions materialized. From the opening of the ticket-sales table on August 20, until the last query--regarding photographs--on August 27, everybody had a good time planning, going, coming home, and reminiscing. The statistics: 19 to Appalachian Valley, 40 to an Atlantic Beach, 21 to Calvert Cliffs, 96 to Chesapeake Biological Laboratory (Figures 14-16), 18 to C&O Canal via barge, 13 to Philadelphia's Franklin Institute, 17 to Hawk Mountain, 17 to Monticello, 32 to Patuxent Wildlife Research Center, 98 to Skyline Drive, 11 to Virginia Institute of Marine Research, 55 to Williamsburg, Virginia.

Air-conditioned buses and individual box lunches (Figure 17) aided in making these trips so successful. Of paramount importance were the generous hosts at each of the biological stations.

The Excursions Committee members and the Congress can be proud of having made it possible for delegates from so many countries (Africa to the Orient) to see so much of Delaware, Maryland, Pennsylvania, West Virginia, and Virginia. According to the delegates, the excursions were tremendously successful.

Harold E. Finley

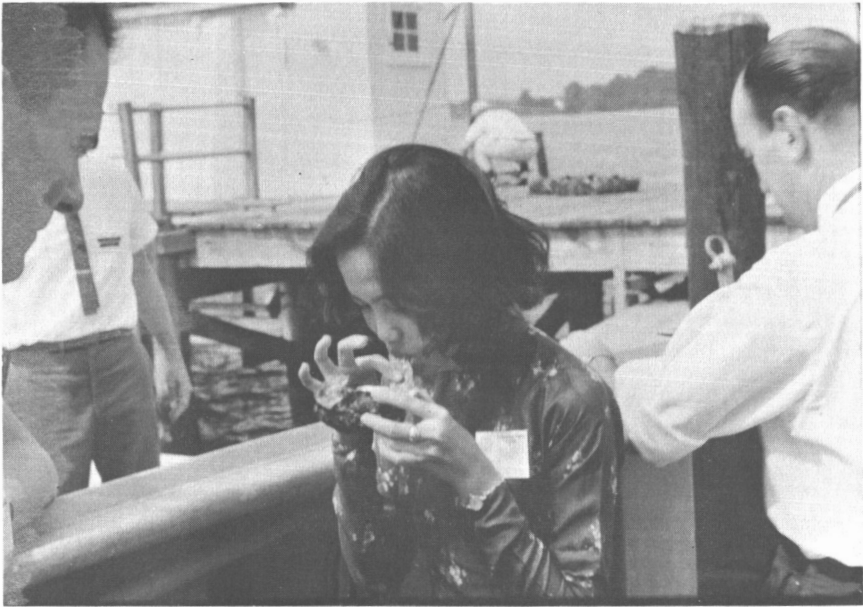


Figure 16. Lunch Time. Excursion to the Chesapeake Biological Laboratory. Bui Thi Lang (Vietnam).



Figure 17. Lunch Time. Excursion to the Shenandoah.

## PUBLIC INFORMATION

Public information for the XVI International Congress of Zoology was the responsibility of the Office of Information of the National Academy of Sciences--National Research Council.

This assignment, carried out in coordination with the Executive Committee for the XVI Congress, involved (1) preliminary announcements of the sessions to the scientific press; (2) consultation with the Secretary-General and the Program Chairman throughout the year preceding the Congress to identify those segments of the scientific program that were likely to be of particular interest and importance to the general public and to various professional audiences; (3) the distribution of more detailed, substantive news releases just prior to the Congress to inform all appropriate media of the theme and content of the sessions, and the anticipated attendance; (4) soliciting the collaboration of public-information officers of other institutions in the preparation of news releases based on participation in the Congress by their own faculty or staff; (5) correspondence with authors of papers and with science writers and editors to develop a schedule of press conferences and to arrange participation in these conferences; and (6) the operation and staffing of a pressroom in the Sheraton-Park Hotel and a press-information office in the Shoreham Hotel throughout the Congress.

More than 40 members of the press, representing newspapers, wire services, magazines, and other news-gathering organizations, registered in the pressroom. A total of 21 major press conferences were held in connection with the various sessions and individual presentations, in addition to arrangements for personal interviews with Congress participants.

Beyond these usual public-information practices in connection with scientific meetings, support was sought and received from the National Science Foundation for a special experiment in public education, involving the research films submitted for showing in the Science Theater. The experiment was intended to test whether the medium of television, with its mass audiences, could be used to broaden the public understanding of an area of science such as zoology on the occasion of a major international scientific meeting in the field, by meeting the essential television requirement of supporting film for news and feature stories.

Under the NSF grant for "A Project to Evaluate a New Set of Techniques for Low-Cost Public Education in a Scientific Field," the Office of Information was able to secure the services of a consultant experienced in television production techniques to review the films submitted for the Science Theater; to select a sample both representative of the substance and direction of zoological research, and technically suitable for television; and to process segments of these films, with commentary, for distribution to the television networks and to selected commercial and educational stations throughout the country. News and film describing the work of the Congress were carried by all four television stations in Washington; also in New York, Los Angeles, Pittsburgh, San Diego, Milwaukee, and Chicago. A report on the project is being submitted to the National Science Foundation.

The above public-information activities were conducted under the supervision of Howard J. Lewis, Director of the Office of Information. Edward D. Aebischer, Assistant to the Director, was responsible for press information. He was assisted by Mrs. Thelma Heatwole, patent liaison officer for the Philip Morris Research Center, Richmond, Virginia, who also serves as director of public information for the Federation of American Societies for Experimental Biology, and as a consultant on public information to the American Association for the Advancement of Science. Mr. Andrew Stern carried out the special public-education experiment under the NSF grant. The Office of Information also wishes to express its gratitude for the services during the month of the Congress of Mr. Charles Iliff, who was on loan from his position as information trainee in the Division of Research Information, National Institutes of Health.

Edward D. Aebischer



## REPORT OF THE WELCOMING COMMITTEE

The Welcoming Committee of the XVI International Congress of Zoology maintained information booths at all the Washington bus, rail and air terminals for two days prior to, and the first day of the Congress. Visiting scientists who so desired were provided with assistance in getting to the Congress Headquarters. The members of the Welcoming Committee are grateful to the more than 80 local zoologists and their students who freely gave their time to attend the welcoming booths. Dr. George Anastos ably performed the task of acting as liaison between foreign visitors and the United States Department of State. The Welcoming Committee was glad to be of help to the XVI International Congress of Zoology.

Allen L. Steinhauer

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Figure 18. Arachnologists at the Congress.  
(opposite)

- Front row: A. S. Shulov (Israel), unknown, M. Birabén (Argentina), R. L. Hoffman (U.S.A.), C. J. Goodnight (U.S.A.), A. F. Archer (U.S.A.).
- Middle row: H. M. Field (U.S.A.), P. C. Holt (U.S.A.), J. Phillipson (U.K.), W. J. Gertsch (U.S.A.), C. Unzicker (U.S.A.), J. Unzicker (U.S.A.), J. W. Hedgpeth (U.S.A.), B. Condé (France), R. Legendre (Madagascar), A. de Barros-Machado (Angola), B. L. Machado (Angola).
- Back row: P. W. Hummelinck (Netherlands), H. W. Levi (U.S.A.), H. L. Stahnke (U.S.A.), P. N. Witt (U.S.A.), D. C. Lowrie (U.S.A.), unknown, J. D. McCrone (U.S.A.), J. Balogh (Hungary).



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## APPENDIX I

### Suggestions for the Preparation of Lantern Slides

The meetings of the Congress will be held in rooms that can accommodate from 200 to 3,000 individuals. Our plans call for first-class projection equipment and for professional operators. We will have screens that meet the recommended standard, namely that giving an image size (horizontal measure) equal to 1/6 of the distance from the screen to the last row in the audience. We believe, therefore, that the lantern slides used in the sessions can be shown to maximum advantage.

Of course quality of the image on the screen depends on the quality of the lantern slides that are projected. It is for that reason that we ask you to pay particular attention to the following instructions.

1. The amount of material on a slide:

All of us have been present at talks where the speaker had so much tabular material on his slide that the projected image was too small and crowded to be seen beyond the first few rows in the audience. The effectiveness of any talk so illustrated is minimal.

If the following rules are followed, those in the rear of the room will be able to see your slides clearly:

a. Written material: Figure 1 on the next page shows the maximum amount of material that should appear on a slide: 45 letters and spaces to a line and 10 lines. If only capital letters are used, the material will be easier to read than if capital and lower case letters are used. If a Leroy or Wrico lettering guide is used, obey the same rule--45 letters and spaces to a line and 10 lines. Within the limits of print size normally used, it does not matter how large, or how small, is the print size of the original. As long as the original is reduced, or enlarged, so as to fill the masked size (see section 2) of the lantern slide, the projected image will be satisfactory.

If tables of data are used, leave 3 spaces between the columns if each column has 4 or more figures. If the columns have 1-3 figures, leave 2 spaces between the columns;

SLIDES FOR THE ZOOLOGICAL CONGRESS

MANY LANTERN SLIDES HAVE FAR TOO MUCH ON THEM TO BE READ EASILY. AS A GENERAL RULE PLAN TO HAVE NO MORE THAN 45 LETTERS AND SPACES ON EACH LINE. THIS RULE HOLDS FOR TYPEWRITTEN OR FOR PRINTED LETTERS. CAPITAL LETTERS ARE BEST. THERE SHOULD BE A MAXIMUM OF TEN LINES OF MATERIAL ON THE LANTERN SLIDE. IF A TYPEWRITER IS USED, THIS MEANS TEN DOUBLE SPACED LINES CAN BE ACCOMMODATED ON A SLIDE.

Figure 1. The above is an example of the maximum amount of material that should appear on a slide. This should be reduced to a horizontal dimension of 3 inches on a 3 1/4 x 4 inch slide and to 34 mm on a 2 x 2 inch slide.

b. Photographs and drawings: Project your slide. Stand at a distance from the screen equal to 6 times the width of the projected image. If you can see what the slide should show, so will the members of the Congress in the last row of the audience. This will be the minimum size that you should use. If you err on size, be sure the image is too large rather than too small. Members with less than 20-20 vision will appreciate mistakes of this sort.

2. Maximum image area for lantern slide (Masked Area):

Most projectors will not project clearly the portion of the image at the edge of the slide. They are designed to project slides that have been masked properly. For a 3 1/4 x 4 inch lantern slide the maximum image area should be 2 1/4 x 3 inches. For a 2 x 2 inch slide (51 mm x 51 mm) the maximum used should be about 1 5/16 x 1 5/16 inches (34 mm x 34 mm). It is preferable that the vertical dimension be less. If possible, use the image size for a 2 x 2 inch mounted kodachrome transparency, which is 23 x 34 mm. The projectionist will place the projector in the auditorium so that the projected image of properly masked slides just fills the screen. Unmasked slides will, of course, more than fill the screen and material on the sides will not appear.

### 3. Marking and numbering lantern slides:

Hold the lantern slide in the position that you wish the projected image to appear on the screen. Place a marker, such as a round white label at the lower left. The projectionist will hold the slide with his right thumb on the marker, and the back of his hand up, when he fits the slide in the projector. Refer to figure 2.

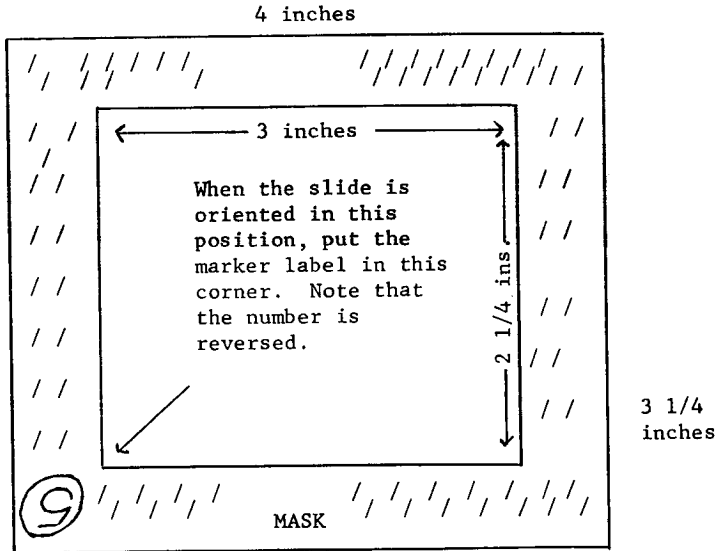


Figure 2. A properly masked, oriented, and numbered  $3\frac{1}{4} \times 4$  inch slide.

Please number your slides in the order they are to be shown. Use india or black ink and make the numbers large. A large number on a white label will help the projectionist read the number in the darkened room. The number should be placed upside-down in the lower left-hand corner. Then, while the slide is reversed to be put in the projector, the number will be properly oriented to be read.

### 4. Sizes of lantern slides:

Our projectors will have carriers for lantern slides with these outside dimensions:

$3\frac{1}{4} \times 4$ inches	$2\frac{3}{4} \times 2\frac{3}{4}$ inches
$3\frac{1}{4} \times 3\frac{1}{4}$ inches	$2 \times 2$ inches

It will aid greatly if all of your slides are the same size.

5. Mounting lantern slides:

The projectors used will be powerful, 1,000 watts or more, or carbon arcs. For this reason it is important that the lantern slides be mounted in glass. This will prevent "buckling," which will otherwise occur.

6. Material to be copied:

The originals for graphs, text material, tables, and diagrams are probably best done in india ink. However, entirely satisfactory typewritten text materials and tables can be prepared as follows: Clean the type thoroughly. Remove the ribbon. Place one piece of new carbon paper against a sheet of white paper. Back the white paper with another piece of carbon paper. Type directly onto the top carbon. The white sheet will then have a carbon impression on the front and on the back. A high-contrast lantern slide can be made from it. (If you have available a typewriter with a carbon ribbon, excellent copy can be prepared.) Be sure to keep within the size limits given in la.

John A. Moore,  
Program Chairman.



## APPENDIX II

### Additional Abstracts of Contributed Papers

(The following five abstracts were received too late to be included in earlier publications.)

NOTES ON RECORDS OF HAEMOSPORIDEA (SPOROZOA-PROTOZOA) IN PAKISTAN.  
Faiyaz A. Lari, Malaria Institute of Pakistan, D A C C A, East  
Pakistan.

Examinations of 516 Blood smears of 513 birds of 38 species, one reptile and 2 mammals from East and West Pakistan, revealed infections of Haemogregarina sp. in the reptile Varanus monitor Linn. and haemosporidean parasites in 27 birds of 5 species. Ploceus philippinus Linn. harboured Plasmodium vauhani Noy and MacNeal, 1904, and Haemoproteus sp. Prinia inornata inornata Sykes, Centropus sinensis (Stephens) and Columba livia Gmelin, were parasitized by Haemoproteus spp. In one example of Gallus domesticus (fowl) in East Pakistan Leucocytozoon sabralesi Mathis and Leger, 1910, were observed. Ploceus philippinus is a new host for Plasmodium vauhani. The records of Haemoproteus in Ploceus philippinus and Prinia inornata inornata are new in the Indo-Pakistan Sub-continent. The Indian records of Haemosporidea are reviewed with reference to Pakistan and it is pointed out that the Indian records may not be fully applied to Pakistan. Morphological accounts of P.vauhani Noy & MacNeal, 1904 and L.sabralesi Mathis and Leger, 1910, are given confirmatory to identifications and to record the differences in the Pakistan species.

## LES CESTODES DU GENRE

ECHINOCOCCUS - J.A. EUZÉBY,

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Malgré le très grand nombre de travaux effectués en cette matière, la taxonomie du genre Echinococcus demeure encore incertaine.

Parmi les dix espèces signalées par divers auteurs, il semble que six seulement méritent d'être retenues : E. granulosus (Batsch, 1786) - E. multilocularis Leuckart, 1863 - E. oligarthrus (Diesing, 1863) - E. lycaontis Ortlepp, 1934 - E. cameroni Ortlepp, 1934 - E. felidis Ortlepp, 1937. Les autres espèces doivent : - ou bien tomber en synonymie avec E. granulosus - ou bien faire l'objet de nouvelles recherches, notamment E. longimanubrius Cameron, 1926 et E. minimus Cameron, 1926.

Les espèces les plus importantes, par le rôle qu'elles peuvent jouer dans la pathologie humaine, sont E. granulosus et E. multilocularis. Chacune d'elle comprend deux variétés : E. granulosus granulosus et E. granulosus canadensis d'une part ; E. multilocularis sibiricensis et E. multilocularis multilocularis d'autre part.

L'auteur du rapport ci-dessus étudie ces diverses espèces et variétés tant en ce qui concerne leur morphologie que leur biologie. De ce dernier point de vue, il s'efforce de mettre en lumière les particularités du cycle évolutif des " Ténias échinocoques " et d'en tirer des conséquences épidémiologiques d'ordre général.

S'attachant, enfin, plus particulièrement aux espèces E. granulosus et E. multilocularis et à leurs variétés, J.E. envisage les différences d'ordre morphologique, biologique et physio-pathologique qui séparent ces parasites et évoque brièvement les caractères particuliers de l'histogenèse de leurs larves. Il termine enfin en rappelant les modalités épidémiologiques et étiologiques des deux types d'Echinococcose larvaire, liées à la biologie des parasites.

FINE STRUCTURE OF THE ENDOSTYLE OF OIKOPLEURA DIOICA. Ragnar Olsson,  
Department of Zoology, University of Stockholm, Sweden.

The original function of the endostyle is believed to be that of an aid in ciliary feeding by the releasing of mucous substances which trap food particles and carry them to the digestive tract. A series of investigations during the last two decades have shown that it is very likely that endostyles, in some cases, may also act as a functional fore-runner of the vertebrate thyroid.

The most simple endostyle type is found in the appendicularians. However, an ultrastructural investigation of the endostyle of Oikopleura dioica reveals that this structure is also a very elaborate apparatus composed of several rows of highly specialized cells. The endostyle opening is lined with several rows of so-called corridor cells with a peculiar surface specialization. A single row of inconspicuous connecting cells is found at each side between the corridor cells and the row of gland cells. The enormous gland cells have a secretory-releasing dorsal surface and a ventral surface from which a few rows of cilia range into the endostyle lumen. Below each gland cell row, three rows of ciliated cells are medially connected with a squamous epithelium which forms the endostyle floor.

The secretory material is released into the endostyle lumen from where it is guided by the median giant cilia into the pharynx in the form of numerous tiny mucous strings which eventually fuse and form an endostyle fibre. The fibre can be followed through the oesophagus into the stomach, where it is decomposed.

THE INHERITANCE OF EAR WAX IN CHINESE OF HONG KONG. S. T. Chang,  
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The investigations show that there are two main types of ear wax in the Chinese population of Hong Kong. One we have called "Granular" and the other "Oily." The data were obtained in the following ways: (1) by direct examination of individuals (Observed Data), (2) by questioning a large number of individuals (Verbally Obtained Data) and (3) by tracing selected family pedigrees.

Examination of pedigree charts reveals that persons with "Oily" ear wax had at least one parent with "Oily" ear wax, and that two people with "Granular" ear wax have children, all of whom possess the same characteristic. The results show that the ear-wax types are apparently determined by a single genetic mechanism and that "Granular" ear wax appears to be recessive to "Oily" ear wax.

Some pedigree charts indicate individuals with one ear of each type. From one of these charts this would appear to be an intermediate condition, but from others it seems to be inherited as a simple recessive. What the mechanism of control in this double expression may be, cannot be elaborated at this time.

The data also indicate that there is an equal distribution of the characteristics between the sexes, thus the genes must be autosomal and apparently are not influenced by sex.

LE COUPLE BIOLOGIQUE: PAGURE ET ACTINIE, par L. Berner (Marseille).

Cette existence collective se présente sous deux formes: ou spécifique (Eupagurus prideauxi Leach avec Adamsia palliata Boh.) ou quelconque (Calliactis parasitica /Coach/ avec divers partenaires). Dans tous les cas, les Pagures peuvent mener une vie indépendante, alors que les Actinies sont tenues à une association, du moins à certains moments de leur vie.

Contrairement aux opinions généralement admises, ces Actines ne sont pas nourries par leurs hôtes, bien qu'elles puissent--le cas échéant--profiter des repas du Pagure. En réalité, les agitations, de celui-ci soulèvent une foule d'animacules qui constituent leurs captures d'aliment. D'un autre côté, les Actinies n'assurent pas une protection absolue au Pagure, car certains poissons prédateurs (p.ex. la Raie) avalent, sans conséquences, tout ensemble, digérant même la coquille. Cependant le pire ennemi des Pagures, c'est le gros pour le petit dont il s'empare ensuite son Actinie, après avoir extrait et mangé la victime.

Dès 1913 BRUNEL a établi le fait que ces Actinies sont "stimulées" par la présence des Pagures; ceux-ci subissent effectivement une attraction à leur tour par les Actinies déterminées, mais non par n'importe laquelle. Ici il faut préciser que ces réactions ne se produisent qu'aux époques d'activité génitale. Jeunes, les Actinies vivent seules, tout comme les Pagures immatures ou pendant le repos des gonades. Il n'y a que les Actinies adultes qui recherchent les Pagures au moment de la reproduction. Ainsi les mêmes espèces de Pagures castrés par des Parasites ou à gonades quiescents, de même que leurs femelles incubants des oeufs sont délaissés. Il faut aussi souligner qu'un Pagure mort est mangé par l'Actinie qui n'y touche point de son vivant.

Il appert ainsi que l'Actinie ne peut atteindre sa maturité et se reproduire qu'au contact d'un Pagure dont elle s'assure par un attrait particulier. L'Actinie est le parti prenant, et le Pagure celui qui subit l'attraction. C'est sous son ascendance qu'il réagit; ses attitudes dépendent des impulsions recues de la sorte, mais il ne subit aucune spoliation au courant de ces actions.

L'effet est donc à sens unique au bénéfice de l'Actinie; c'est ce qui explique pourquoi le Pagure peut toujours mener une existence indépendante, mais non l'Actinie--à tout le mois--à certains moments de sa vie. Alors seulement, c'est bien elle qui recherche activement son partenaire.

La stimulation de l'Actinie est incontestablement occasionnée par un Pagure en activité génitale, et uniquement en cet état fonctionnel.

Cette relation étroite avec des gonades actives--mâles ou femelles--dénote la nature hormonale de l'agent en occurrence.

D'autre part, l'Actinie secrète au moment de cette stimulation une substance qui déclenche les réactions bien connues chez les Pagures, en lui assurant un contact permanent.

Ainsi donc l'influx nerveux est transmis à distance par voie chimique. Il s'agit ici d'une médiation exocrine des partenaires mais en faveur de l'actinie, sans dommage pour le Pagure.

La perception des substances mises en jeu est réalisée par des cellules sensorielles--probablement spéciales. Les Actinies possèdent un riche plexus nerveux et des récepteurs. Chez Diogenes pugilator (Roux) des terminaisons sensorielles tégumentaires, sous forme de glands sur la chitine des flancs et de la face ventrale de l'abdomen ont été décrites par Ch. PÉREZ en 1937. Cependant cette espèce vit généralement seule.

Le phénomène n'est pas unique. K. v. FRISCH a découvert chez Phoxinus phoxinus (L.) une glande dont la sécrétion émise au moment de sa capture par un prédateur diffuse dans l'eau et avertit du danger le troupeau qui prend aussitôt la fuite pour se sauver.

Conclusion: la communauté: Pagure et Actinie n'est pas une symbiose, mais une nécessité pour celle-ci afin de parvenir à sa maturité et pouvoir se reproduire; ceci au moyen des sécrétions de son partenaire. C'est donc un couple biologique à réactions collectives en sens unique, parce que le Pagure peut s'en passer. Effectivement il s'en trouve qui vivent toujours seul, ce qui n'est pas le cas chez l'Actinie adulte. La spécialisation d'Adamsia palliata Boh. pour un partenaire déterminé semble être une exception.